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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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British Dyestuff Prices

THE decision of the Dyestuff Licensing Committee to lower what is known as the "price factor" by 20 per cent. from September 1 next—that is, from two and a half times the pre-war price to double pre-war price—is satisfactory evidence of the steady advance that continues to be made in British dyestuffs production and commercial organisation. The statement widely published this week that the prices of all British dyes will be reduced by 20 per cent. is not quite an exact description of the situation. The Committee's decision does not mean that the price of every dyestuff will automatically decline by 20 per cent.; it simply means that the price barrier against competitive foreign dyestuffs is to be lowered to that extent. The price factor only operates in relation to dyestuffs which are produced in adequate quantities in this country as well as in competing countries. Where, for example, an importer desires to import a foreign dyestuff and the same or a corresponding dyestuff is already being produced in this country, he is referred to the British producer. If, however, he can show that the British producer's price is more than two and a half times the pre-war price, that constitutes a good ground for the grant of an importing licence for the foreign product.

The latest reduction is a stage in a process which has been going on for some time. When the Dyestuff Act was passed in 1920 no price basis was fixed. Later, the Licensing Committee set up a price factor at three times the pre-war price, and licences for the import of foreign dyes were of course issued when the British price exceeded that figure. Two years ago the factor was reduced to two and a half times, and it now comes down to exactly double the pre-war figure. The present price factor represents an advance on pre-war prices of 100 per cent., and generally it may be said that dyestuff prices are thus brought pretty near to the level of most industrial commodities. In many cases the new price factor may not produce any material change, for, we believe, several classes of British dyestuffs are available at present at less than the existing price factor. Although the Committee's decision does not actually compel the makers to reduce their price to the new standard, it will almost inevitably have that effect where they are in competition with foreign firms. In cases where users desire to import foreign dyestuffs not manufactured in this country the price factor of course does not apply.

The decision to reduce the price factor to double the pre-war figure will, no doubt, be received with satisfaction by the colour users of the country, who, while they have loyally declared their intention of supporting British makers and doing their part towards the establishment of a self-dependent dyestuff industry, have complained that they were called upon to make an unfair sacrifice for these objects. It has been argued that competition in the textile industry is so keen that a small difference in the cost of dyeing the material may have a decisive effect on the market. The same controversy has apparently been going on in America, judging by the fullness with which the relative cost of the dyestuff to the cost of the finished article is discussed in the last Dyestuff Census. The evidence goes to show that the cost of the dye is only a minute proportion of the total cost of the finished article, and only in very exceptional cases could so extremely fine a difference have any effect upon selling prices. Nevertheless, it is satisfactory to note the downward tendency of prices, because it removes what many users still regard as a grievance and because in itself it points to increased efficiency in our methods of production and general organisation.

It is fairly certain that the Licensing Committee would not impose upon the dyestuff industry a standard which would make economic competition with foreign rivals impossible. It may be assumed that the principal makers were consulted before the change was decided on, and the fact that the decision has now been made may be taken to prove that in most cases dyestuff makers will be able to work to the new standard.

The reduction of prices, pointing unmistakably to more economic and efficient production, is not the only

direction in which the British dyestuffs industry is firmly establishing itself. There are two other aspects that afford equal satisfaction. The first is the steady increase in the ranges of available British colours; the second is the marked advance that has taken place in their quality. It is roughly estimated to-day that 80 per cent. of the dyestuffs consumed in this country are of British production, and the remainder, for which we depend upon foreign sources, are limited to special classes of dyestuffs which for various reasons the British makers have not yet taken up. Considering that before the war our home production represented not more than 20 per cent. of home consumption, the expansion of output constitutes a remarkable record. Equally, if not more, significant is the fact that we are now producing dyes of a class and quality which no other nation can surpass. This applies especially to the vat dyestuffs, which constituted one of the greatest difficulties when German supplies were cut off. The manufacture of these dyes has developed enormously in recent times, and the output still continues. Only this week, for example, Scottish Dyes, Ltd., announce the addition of four new colours in their famous Caledon series, and it is now safe to say that in point of quality the British output is perfectly satisfactory. The development of these vat dyestuffs is a work of great importance to the textile industry, because here, as in America and elsewhere, the buying public have been educated to distinguish between fast and fugitive colours. Considering the small cost of the dye in proportion to the total cost of the article, it is recognised as false economy to employ cheap colours that fade or wash out in preference to permanent colours that are reasonably fast to light, to washing, and to the other recognised tests.

Looking back on the past seven years no one could impartially estimate the situation without being impressed by the constructive work done in so short a period. We have always regarded it as unsafe for any industry to trust permanently to artificial protection of any kind. In the case of dyestuffs it was clearly essential that adequate protection should be afforded the industry in its earlier stages. That protection has been more than justified by the progress which has already been made, and the complete justification which everyone hopes for will be that, when the Act runs out, some three or four years hence, the dyestuff industry will then be so strong as to be able to stand upon its feet without any Government or other aid.

Colonial Research Scheme

THE new scheme for the establishment of a Colonial Scientific and Research Service is of interest to chemists because it indicates a further recognition of the importance of research and a new field for the services of the highly qualified research worker. The initial cost is one and three-quarter millions. The scheme applies to the non-self-governing dependencies, but it is regarded as a step towards a larger plan for the full development of the latent resources of the Empire. Naturally, agricultural research is the work most immediately in view, but this, after all, is only one aspect of the great natural wealth in undeveloped overseas lands, and the field awaiting the energies of the chemist, the chemical engineer, and the commercial organiser are practically without limit. Rich areas, it is stated, have been scarcely scratched over, and the aid of science but half-heartedly invoked. Large as the scheme looks now, it is but a small starting-point compared with the vastness of the opportunities.

On this subject it may be well to remind those who contemplate employing research workers of the wise words spoken by Sir Alfred Mond at a gathering of the British Non-Ferrous Metals Research Association this week, and needing to be pressed repeatedly on the leaders of British industry. During his recent visit to Germany, he saw much of the laboratory equipment and organisation, and he confessed to a feeling of shame when he compared it with the amount spent on research in this country. He was literally correct in suggesting that some people think, if they engage a research staff as an experiment, that results must be forthcoming just as when they order a dinner. But negative results, as he reminded the members, are often as valuable as positive results, and the action of members who dropped out of the Association because they secured no results of immediate value to themselves he described as suicidal. All this, of course, has been said before, but it needs saying repeatedly, and especially by those so well able to judge as Sir Alfred Mond, if the heads of industry are to realise what research really means.

Russian Chemical Trade

WE have no figures to show the exact extent of any chemical trade done between this country and Russia, and therefore to indicate what may be the effect of any rupture in commercial relations. But this may safely be said—any *bona fide* trade with Russia or any other part of the world is to be welcomed, and anything that needlessly restricts it is to be regretted. It used to be accepted as an axiom that our imports are paid for by our exports, and on this basis if the Russian trade agencies bring Russian products here a roughly corresponding quantity of British trade must go to Russia. The break with the Russian Government does not necessarily involve a break of any commercial operations that may be going on, except in so far as it may affect credits. Honest Russian traders will still be quite free to do business with honest British traders, and if that is what they desire no impediment will be placed in their way. The Government, in breaking off diplomatic relations with Russia, have endeavoured to make it clear that their objection is to what is called "subversive" propaganda activities and to that alone.

We are putting this in simple terms because THE CHEMICAL AGE penetrates to places in the U.S.S.R. where the words of British statesmen may not reach. It is read in many of its laboratories and universities by chemists and technologists. Whatever was thought of Russian revolutionary methods, the scientists of this country had the warmest sympathy with the scientists of Russia, and indeed did much during the worst period to keep them alive and to help them to keep the flame of knowledge alight. Evidence reaches us from time to time that

the chemist and the scientist generally is slowly recovering recognition in Russia. It is a sign of gradually returning sanity, for if the resources of the Russian Empire are ever to be made available, they can only be opened up by the aid of the chemist and the engineer, with the research man at work behind them. The object of this note is to let the members of the reviving chemical profession in Russia know that for them and their scientific work there is nothing but friendliness in this country. The continuance of their work and the expansion of their influence will be among the most potent influences working for the restoration of their great country. They will be doing something good if they make it clear to their countrymen that honest commercial exchange, like honest interchange of knowledge, is one of the best and shortest routes to a good understanding.

Dyers and the Chemical Industry

IT is noteworthy to find Mr. Adolph Hoegger, the chairman of the British Cotton and Wool Dyers' Association, expressing such emphatic approval of the recent amalgamation of chemical concerns in this country, and even hinting that the suggested understanding between British and German chemical and dyestuff interests may turn out to be good for the dyeing industry. The good that he has in view is obviously such a general raising of the standard of efficiency as would lead to the cheaper production of dyes. Cheapness, too, is not to be regarded as an end in itself, but again as a means to cheaper production of textiles and an ever-increasing market. It was satisfactory to have the chairman's testimony to the real progress that the British dyestuff industry is now making, and especially to the increasing production of satisfactory vat or fast colours. This question of fastness is obviously becoming a recognised factor in the textile trade, both here and in other countries, and the dyers evidently look with favour on the committee which has been appointed by the Society of Dyers and Colourists to consider the establishment of recognised trade standards; this is not entirely an easy task. Colours that may be quite fast to one test may fail when subjected to another. The committee, however, will probably be able to suggest such tests as will serve to indicate the characteristics of a colour, and so satisfy the public demand for some sort of guarantee.

Boiler-Scale Formation and Prevention

WE learn that a physico-chemical study of boiler-scale formation and boiler-water conditioning has been completed by chemists of the United States Bureau of Mines, in co-operation with the Carnegie Institute of Technology and industrial interests. This, it is claimed, is the first fundamental scientific study conducted, from the viewpoint of the physical chemist, of the mechanism of scale formation and corrosion under the temperature, pressure, and concentration conditions that prevail in steam boilers. The study, we understand, has yielded fundamental data on which to prescribe a rational chemical treatment of boiler water, information which has been lacking in the past. The results of the investigation, it is thought, may tend to promote real conservation of fuel and boiler equipment, and therefore offer an opportunity of effecting considerable savings in the fuel bill. Fuel losses due to the formation of boiler scale run into enormous figures.

A report containing the results of this investigation has just been issued as Bulletin 24, Mining and Metallurgical Investigations, by the Carnegie Institute of Technology. The authors of the bulletin are Mr. R. E. Hall, physical chemist, United States Bureau of Mines; Messrs. J. A. Robb, H. S. Karch, and E. A. Hertzell, research fellows, Carnegie Institute of Technology, and Messrs. G. W. Smith and H. A. Jackson, chemical engineers, Hagan Corporation. The bulletin discusses the principles of boiler-water conditioning; the solubility of calcium sulphate, barium sulphate, and calcium phosphate at boiler-water temperatures; the relation of hydroxyl ion to the inhibition of corrosion; the non-condensable gases of the steam; and the increment of soluble and insoluble solids in boiler water. Copies may be obtained from the Carnegie Institute of Technology, Pittsburgh, Pa., at $2.

Books Received

ATOMS AND MOLECULES. By R. M. Caven. London: Blackie and Son, Ltd. Pp. 141. 7s.

QUANTITATIVE ANALYSIS. By J. Barker Smith. London: Imperial Press, Upper Norwood. Pp. 16. 1s.

LIME AND LIME MORTARS. Building Research Special Report No. 9. Department of Scientific and Industrial Research. Pp. 82. 1s. 9d.

METHODS OF GROWING LARGE METAL CRYSTALS. Fourth Sorby Lecture, delivered by Professor H. C. H. Carpenter on October 22, 1926. Pp. 38. 1s.

The Calendar

June 9	Optical Society. 7.30 p.m.	Imperial College of Science and Technology, London.
11–18	International Oil, Chemical and Colour Trades Exhibition.	Royal Agricultural Hall, Islington, London.
14	Röntgen Society: Silvanus Thompson Memorial Lecture. "Structure of the Atom and Radiation." Professor Sir J. J. Thomson. 8.30 p.m.	Royal Society of Medicine, 1, Wimpole Street, London, W.1.
15	Electroplaters' and Depositors' Technical Society: "Electro-refining of Silver." E. Downs. 8.15 p.m.	Northampton Polytechnic Institute, St. John Street, London, E.C.1.
15	Society of Glass Technology. 2.30 p.m.	Sheffield.
16	Chemical Society: Ordinary Scientific Meeting. 8 p.m.	Burlington House, Piccadilly, London.
16	British Chemical and Dyestuffs Traders' Association, Ltd.: Annual Meeting. 2.30 p.m.	Great Eastern Hotel, London, E.C.
24	National Physical Laboratory: Annual Visit of Inspection. 3 to 6 p.m.	Teddington.
29–30	North of England Institute of Mining and Mechanical Engineers: Annual General Meeting.	Newcastle-upon-Tyne.
July 1		
4–8	Society of Chemical Industry: Annual General Meeting.	Edinburgh.
Aug. 31–Sep. 7	British Association for the Advancement of Science: Annual Meeting.	Leeds.

Furfural and its Derivatives as Solvents

Possibilities in the Lacquer Industry

The abundance of raw material for the manufacture of furfural, and the low cost of the substance and its derivatives, together with their solvent properties, lends importance to furfural derivatives in regard to possible application in the cellulose lacquer industry. The following paper on the subject was read by Mr. J. P. Trickey before the Paint and Varnish Chemistry Section of the American Chemical Society at a recent meeting, and is reprinted from "Industrial and Engineering Chemistry."

Among the interesting properties of furfural and its derivatives is their solvent action on the cellulose derivatives and other components of lacquers. Little information is to be found in the journal literature, although a number of patents have been issued bearing directly on the use of furfural as a cellulose nitrate solvent. The few United States patents are but remotely connected with this particular phase of furfural application.

Carrol (*U.S.P.*, 1,450,716, 1923) describes the use of furfural, either alone or in admixture with one or more of the monohydroxy aliphatic alcohols, as a solvent for the alkyl ethers of cellulose. Meunier (*F.P.*, 472,423, 1914) mentions the use of furfural as a solvent for cellulose nitrate and also its solvent action on varnish gums and resins. He also describes its use when mixed with alcohol or benzene as a solvent. Steimmig (*G.P.*, 307,075, 1919) describes the solvent action of furfural on cellulose acetate. Polewski and Morin (*F.P.*, 491,490, 1919) utilise a mixture of furfural and creosote as a heavy solvent, while Bonwitt (*F.P.*, 519,536, 1921) employs furfural as a solvent in making plastic masses from cellulose acetate. Mains takes (*U.S.P.*, 1,381,485, 1921) advantage of the solvent action of furfural in a paint and varnish remover. Ellis (*U.S.P.*, 1,558,442, 1925) prepares a solution of nitrocellulose or cellulose acetate in furfural and then prepares plastic masses by resinifying the furfural with an acid catalyst, the cellulose ester dissolved in the furfural resin imparting desirable properties not possessed by the straight furfural resin. Other references give similar information on the solvent action of furfural and its application to the preparation of lacquers and spirit varnishes.

This solvent action is not limited to furfural alone, for practically all its derivatives possess this property. The use of furfural alcohol as a high-boiling solvent is mentioned by Goissedet and Guinot (*F.P.*, 512,850, 1921). A search of the literature has not revealed any suggestion that other derivatives of furfural have this property, yet the majority of the furfural derivatives the writers have so far studied, both solid and liquid, have a solvent action on cellulose nitrate. Furan and methyl furan have less of this solvent power than the other members of this series. A large number of the furfural derivatives are also good solvents for cellulose acetate.

Adams and Kaufmann (*J.A.C.S.*, 1923, Vol. 45, 3,029) show that when furfural is hydrogenated a number of compounds are formed. The first reduction product is furfuryl alcohol and is obtainable in practically quantitative yields. From this point on, however, a mixture of reduction products is formed consisting of tetrahydrofurfuryl alcohol, amylene glycol-1,2, amylene glycol-1,5, and *n*-amyl alcohol. The chief product is tetrahydrofurfuryl alcohol, the others being formed in lesser amounts in approximately the order given. The tetrahydrofurfuryl alcohol and the amylene glycol-1,2 are cellulose nitrate solvents, while the amylene glycol-1,5 merely causes swelling.

Some of the physical properties of furfural and its derivatives are given in Table A. All the unsaturated compounds

Table A.—Physical Properties.

Product.	Boiling Point °C.	Refractive Index.	Specific Gravity (20°/4° C.)
Furfural	161·7	1·5261	1·1598
Methyl furoate	181·3	1·4869	1·1786
Ethyl furoate	195·0	1·4782	1·1774
Propyl furoate	211·0	1·4750	1·0745
n-Butyl furoate	233·0–6	1·4740	1·0555
Isoamyl furoate	232·0–4	1·4720	1·0335
Furfuryl alcohol	169·0	1·4864	1·1351
Furfuryl acetate	175·0–7	1·4627	1·1175
Tetrahydrofurfuryl alcohol	177·0–8	1·4508	1·0514
Amylene glycol-1,2	210·0–11	1·4413	0·9802
Amylene glycol-1,5	237·0–8	1·4499	0·9938

are practically water-white when pure, but slowly turn a pale straw to light amber colour and possess characteristic ester odours. The esters are insoluble in water, but soluble in benzene and many of the alcohols. With the exception of methyl furoate they are all miscible with gasoline, and even this ester will dissolve 50 per cent. of its volume of gasoline. Furfural is soluble in water to 8·3 per cent. at 20° C., and will dissolve approximately 4·8 per cent. of water at the same temperature, the solubility increasing with temperature. It is soluble in all proportions in benzene, alcohol, acetone, and ether. Furfuryl alcohol is soluble in water and the ordinary organic solvents. Furfural and furfuryl alcohol are but slightly soluble in gasoline. Tetrahydrofurfuryl alcohol as well as the other hydrogenation products mentioned are water-white and soluble in water in all proportions. With the exception of furfuryl alcohol, they have but very light odour and do not discolour with age.

The solvent action of these substances on gums and resins is given in the following Table B.

Table B.—Solubility of Gums and Resins.

Product.	Congo	Guaiac	Dammar	Coumarone	Ester	Sandarac	Mastic	Kauri	Pontianac	Shellac
Furfural	sw	ss	ss	s	s	ss	ss	ss	sw	ss
Methyl furoate	sw	ss	ss	s	s	sw	sw	sw	sw	ss
Ethyl furoate	sw	s	sw	s	s	sw	sw	sw	sw	ss
Propyl furoate	sw	ss	sw	s	s	sw	sw	sw	sw	ss
n-Butyl furoate	sw	ss	sw	s	s	sw	sw	ss	s	ss
Isoamyl furoate	sw	ss	sw	s	s	sw	sw	ss	ss	ss
Furfuryl alcohol	sw	ss	sw	s	s	s	s	s	s	s
Furfuryl acetate	sw	ss	sw	s	s	sw	sw	ss	sw	ss
Tetrahydrofurfuryl alcohol	ss	s	sw	s	s	s	s	s	s	s

sw = swells ; ss = slightly soluble ; s = soluble.

The dilution ratios were determined by dissolving 2 grams of nitrocellulose (R. S. ½ second) in 20 cc. of the solvent and diluting the solution with toluene, gasoline (special No. 18, Sun Oil Co.), *n*-butyl alcohol, and water until the nitrocellulose

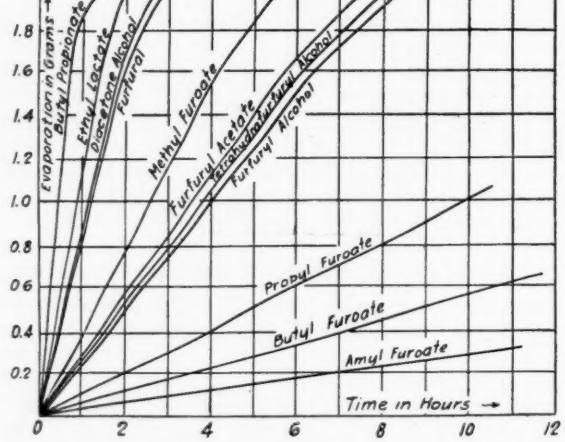

Fig. 1. Rate of Evaporation of Furfural and Derivatives.

precipitated. This volume divided by the volume of solvent originally used represents the dilution ratio. The results are given in Table C. Figures on ethyl lactate and diacetone alcohol are included for comparison.

TABLE C.—DILUTION RATIOS.

Product.	Toluene.	Gasoline.	Water.	*n*-Butyl Alcohol.
Furfural	2·9	0·15*	0·07	2·10
Methyl furoate	3·1	0·40	—	2·6
Ethyl furoate	3·45	0·65	—	6·15
Propyl furoate	3·9	1·05	—	>12·50
n-Butyl furoate	3·8	1·35	—	>12·50
Isoamyl furoate	3·2	1·60	—	>12·5
Furfuryl alcohol	2·65	0·05*	0·08	5·0
Furfuryl acetate	1·65	0·50	—	4·2
Tetrahydrofurfuryl alcohol	7·8	0·55*	0·23	>12·5
Ethyl lactate	5·25	0·75*	0·07	—
Diacetone alcohol	3·25	0·50	0·22	—

* Two layers formed, but no precipitation of the cellulose nitrate.

The rates of evaporation were determined by weighing 2 grams of the solvents in flat-bottomed dishes of equal size and determining the loss in weight. All were run at the same and under strictly comparable conditions. Fig. 1 shows the results obtained.

The relative viscosities of nitrocellulose solutions made with the various solvents were determined by means of pipets surrounded by a water jacket and maintained at constant temperature. Eight per cent. solutions of nitrocellulose (R. S. ½ second) were used. The results are given in Table D.

TABLE D.—RELATIVE VISCOSITIES OF NITROCELLULOSE SOLUTIONS (Temperature, 25° C.)

Solvent.	Time of Flow. Minutes.	Seconds.
Small-Orifice Pipet.		
Ethyl acetate	1	16·6
Butyl acetate	1	3·3
Amyl acetate	2	36·9
Ethyl lactate	8	58·4
Furfural	6	1·7
Methyl furoate	13	38·4
Large-Orifice Pipet.		
Amyl acetate		14·4
Ethyl lactate		35·4
Furfural		25·9
Methyl furoate		53·6
Propyl furoate		64·2
n-Butyl furoate		80·8
Isoamyl furoate		79·7
Furfuryl alcohol		91·6
Furfuryl acetate		37·6
Tetrahydrofurfuryl alcohol		69·7

These data indicate the possibilities of furfural and its derivatives in the manufacture of lacquers. The abundance of raw material, the present low cost of furfural, and the probability of still lower prices as production increases warrant the consideration of the esters as well as the hydrogenation products as commercial possibilities. It is highly probable that these derivatives will ultimately be manufactured in quantities and at prices which will make their use in the lacquer field of very great importance.

Flood Threatens American Alcohol Plants

A RECENT message from America states that the crest of the flood is rapidly approaching the vicinity of New Orleans, and threatening the alcohol plants located there. The plants in this vicinity have accounted for 35 per cent. of the alcohol production of the country for years back, and 30,000,000 gallons of molasses are understood to be stored in hands of alcohol producers and molasses importers. The Orange Grove plant of Rossville Co., at Braithwaite, is believed to be under water, since it was at this point that the levee was cut below New Orleans. Other plants in the district are the Crescent Industrial Alcohol plant of American Solvents and Chemical Corporation, at Algiers, the Jefferson Distilling plant of the same company at Harvey, the largest plant of the Kentucky Alcohol Corporation at Westwego, the plants of the Federal Products Co., and the U.S. Industrial Alcohol Co., also at Westwego, and the molasses plant of Penick and Ford between Marrero and Harvey. All of these plants are south of the city. In the city are two plants of the U.S. Industrial Alcohol Co., as well as the molasses plant of the Dunbar Molasses Co.

Claim Against Manchester Dyers' Firm

IN the Civil Court, Manchester Assizes, May 19, before Mr. Justice Branston, Thomas Johnson and Sons, Ltd., manufacturers, of Manchester, sought to recover damages from John Lancaster (Manchester), Ltd., dyers, of Bloom Street, Manchester.

The contract in question related to the printing of some shirtings belonging to the plaintiffs. After seeing samples submitted by the defendants, the plaintiffs gave the work to them. The samples submitted were vat dyed, and the shirtings in question which, it was said, were to be in ordinary colours, were chrome dyed.

The "vat" dyed samples were, however, according to the defendants, really for the purpose of showing the quality of the finish, and "ordinary colours" were verbally arranged to be used in connection with the shirtings.

On the part of the defendants, it was urged that some of the goods which the plaintiffs had supplied to customers had been rejected, and according to the evidence before the Court, the want of "fastness" in the goods had been the main reason.

On the part of the defendants, it was urged that the chief tests of the quality of the prints were "feel" and appearance, and that the plaintiffs had applied too severe tests to the prints, in view of the African market for which in the main the goods were required. The price charged was also lower than for "vat" dyed goods.

Many witnesses were examined on both sides. From one it was elicited on behalf of the defendants that of the 19,365 yards of the printed shirtings, 17,000 yards had been disposed of to various customers, and that only two of the plaintiffs' customers had made complaint.

The Judge decided that the defendants were liable in the action, and he gave judgment, with costs, for the plaintiffs. The amount of damages was left to be fixed by a referee.

The Transport of Chemicals

THE photograph reproduced herewith is of considerable interest to those concerned in the transport of chemicals and kindred materials. The photograph is supplied by the

"Sentinel" Waggon Works, Ltd., of Shrewsbury, who describe the vehicle as a two-compartment tanker, each specially stayed compartment of which has a capacity of 1,320 gallons. Allowing 5 per cent. for air space, a modern tanker can thus carry 2,508 gallons, at a £66 tax.

Manchester College of Technology: Summer Courses

WE have received from the Manchester Municipal College of Technology its Prospectus of short courses of lectures and laboratory work to be given during the summer, 1927. The summer evening classes commence on Monday and Tuesday, June 13 and 14, and continue until Tuesday, July 26. In the department of chemistry and chemical technology there are courses on electrolysis in chemical industry; the natural colouring matters; the manufacture and testing of wood pulp; gas producers and producer gas; some modern fermentation processes; practical inorganic chemistry; advanced practical organic chemistry; and the bleaching and dyeing of artificial silk. The fees are 10s. 6d. per course for students living in certain prescribed areas, and 18s. per course for others.

Organisation in the Chemical Industry

To the Editor of THE CHEMICAL AGE.

SIR,—I expected ere this that we should have had an expression of opinion from the various associations in the chemical industry concerning the advisability of taking steps to establish a joint council for the purpose of dealing with questions that affect the industry as a whole, a charter for the grading, qualification, and registration of chemists, chemical engineers, and chemical workers being a case in point. Regarding Mr. Rhodes's letter in THE CHEMICAL AGE of May 14, wherein he goes as far as "exploring the possibility," his questions could be asked more appropriately in a joint council, when I have no doubt all could be made clear and such doubts dispelled. Alternative questions could also be asked such as (1) the status in the industry of the nominations committee of his Association; (2) do the employers accept that status as a criterion of qualification?; (3) what public authority accepts the status when making appointments?; and so on.

To get down to the facts, Mr. Rhodes's Association is, I understand, 1,100 strong, and confines itself to a section of the industry. I am compelled, however, to meet Mr. Rhodes's questions in good faith; therefore I enclose for your information our agreement wage schedules and conditions that cover the whole industry. The National Union of Drug and Chemical Workers is an industrial union; that is, a trade union that covers and caters for the whole and every section of the industry. It takes as members all who work therein—the chemist and the process worker, the pharmacist and the metal worker, sit together in council and discuss their problems as fellow workers. The bedrock principle of their unity is "In unity we are strong: divided we are weak." It is to carry out that policy to its logical conclusion that I put forward the proposal for a joint council.

The professor who works out the theory, the chemist who works out the formula, the engineer who makes the process, the process worker who carries out the manufacture, the pharmacist who makes up the prescription, the retail worker who hands it out to the public who swallow it, are linked together by their interests. Moreover, I believe that the process worker and retailer, even the labourer, will be found quite capable of holding his own on such a council.

At the moment the chemical industry is in water tight—or should I say gas tight?—divisions—sectionalised, exclusive, suspicious, and somewhat prejudiced. There is, however, a wealth of ability and talent in the industry such as no other possesses. The urgent problem is that of organisation to give outlet and expression and scope for the same, which the joint council is calculated to do. No one will deny that the chemical industry is not rightly organised. Consequently there is a lack of confidence. It is the most important industry of all, on which all others depend. It should be and can be organised if reason and common sense are applied and fear driven out.

Suppose, then, we make up our minds—no one else can do it for us—and approach the whole question in a spirit, and on a basis of co-operation and unity, such as the formation of the joint council pre-supposes. It will give confidence to all grades inside the industry, to the public outside, and act towards the State as the responsible custodian and guarantor of chemical qualifications, standards, and conditions.—Yours, etc.

National Union of Drug and Chemical Workers. WILSON COATES, National Organiser.

British Benzole

To the Editor of THE CHEMICAL AGE.

SIR,—In view of the recent propaganda appertaining to Soviet petrol, we should like to make the position quite clear as far as the products sold by this company are concerned.

National Benzole Mixture is composed of benzole produced from British coal, and petrol refined within the Empire. It is produced and distributed entirely by British labour, and exploited by British enterprise and capital. In short, it is completely British.

Many of your readers no doubt will welcome this official statement.—Yours, etc.,

Wellington House, Buckingham Gate, S.W.1. May 31. NATIONAL BENZOLE CO., LTD.

Landlord and Tenant Bill

To the Editor of THE CHEMICAL AGE.

SIR,—The Leasehold Reform Association cordially welcomes the proposals of the Government's Landlord and Tenant Bill as being a first step, long overdue, towards the removal of leasehold injustices. It also appreciates the Home Secretary's assurance that this is not conceived as a party measure, and that those in charge of it will give friendly consideration to all amendments designed to improve it.

This latter promise is of the greatest importance, because the Government measure, while in many respects parallel to, if not in fact based on, the Landlord and Tenant Bill recently promoted by this Association, omits in its present draft certain reforms which leaseholders regard as quite the most fundamental of all. To put it briefly, what the Government offers—and that to one class of leaseholders only—is compensation. What all tenants demand is security.

Tenants are not anxious to extort large sums of money from their landlords. They are enjoying the use of certain property belonging to their landlord—a site, a house, a shop—and for that property they are quite willing to pay the fair market rent. All they ask is that, paying such rent, they shall be allowed the undisturbed use of the property, for residence or industry, and be able to invest further capital of their own in improving and developing it for its best use, without being exposed to vexatious interference or extortion, or the periodic hazard of losing everything by being thrown out when the term of their current lease is reached. The Government Bill assumes disturbance as the normal event, and starts with the problem of compensation.

The principal reforms which leaseholders demand may be summarised as follows: First, a right to renewal of tenancy on fair terms. If this were given, subject to reasonable safeguards, the vexed question of compensation would arise much less frequently. Second, compensation for uncovenanted improvements in respect to all types of property—houses as well as shops. Third, compensation for valuable goodwill wherever it exists, including the goodwill of professional men, doctors, etc., as well as of traders. And last, but by no means least, some means of obtaining the right in special circumstances to acquire their freeholds compulsorily. Leasehold enfranchisement is not the most satisfactory remedy for all forms of grievance, but there are unquestionably circumstances where it ought to be available. It is intolerable that in towns where all the land is monopolised by one or two great landlords, they should be able, by refusing to sell freeholds, to hold the whole community perpetually at their mercy. Freedom of contract is in such cases a farcical misnomer.

Not one of the reforms outlined above is at present contained in the Government Bill. Unless they can be included in the course of the Committee stage, the final measure will be lamentably inadequate, however excellent its intentions, and may, in fact, only serve to delay a proper treatment of the leasehold problem.—Yours, etc.,

HENRY B. BARTON, President.
THOMAS KEENS, Chairman.

Leasehold Reform Association,
Westminster, S.W.1.
April 20.

Key Industry Exemptions

THE British Chemical and Dyestuffs Traders' Association have been advised by the Board of Trade that the Board do not propose to recommend the Treasury to issue exemption orders in respect of cocaine and cocaine hydrochloride, as they understand that a home maker "is preparing to manufacture these products." Further, the Board report that the application in respect of hydroquinone "is still under consideration." The Department have been asked to state how long they propose to withhold recommending the Treasury to issue exemption orders in respect of cocaine and cocaine hydrochloride, should the firm be unable to produce sufficient of these materials to meet normal requirements. In regard to hydroquinone, which application has been pending since about September last, the Association has protested against the undue delay and consequent uncertainty of the position, and has pressed for an immediate decision.

Chemical Matters in Parliament

Science Courses for Lecturers

Mr. Rennie Smith (for Mr. Cove, House of Commons, May 23) asked the President of the Board of Trade whether he was aware that there was a demand among lecturers in technical institutions for short refresher courses of an advanced nature in chemistry and physics; and if in view of the educational advantages of keeping these lecturers in touch with the most recent research in their subjects, he was prepared to organise such courses. Lord E. Percy, in reply, stated that the information in his possession did not support the suggestion made in the first part of the question. Lecturers in technical institutions had ample opportunity, *e.g.*, through membership of learned societies, of keeping in touch with scientific progress.

Replying to Mr. Ernest Brown (House of Commons, May 26), Mr. McNeill stated that the Government representative on the board of directors of the British Celanese Co. was Sir Philip G. Henriques. He was appointed with the ordinary powers of a director on February 28, 1920, and could not be removed without the consent of the Government, so long as the Government held not less than 250,000 preference shares.

Silicate of Soda in Water

In reply to a question by Mr. Morris (House of Commons, May 24), whether the Minister of Health was aware that local authorities were proposing to adopt the process of adding silicate of soda to soft water in order to prevent the solvent action of water on lead pipes, and whether, in view of the toxic action of silica under certain conditions he would order that the use of this process be discontinued, Sir Kingsley Wood stated that the Minister was aware that the process had been adopted in a few districts, mainly on an experimental scale. The quantity of silicate of soda used was so small that the proportion in the treated water was much less than that contained in many natural waters used for domestic supplies. The results of the treatment were being carefully watched, and, upon the information so far available, there appeared to be no reason to apprehend any danger to health.

Coal Used in Gas Production

In answer to a question by Mr. Lunn (House of Commons, May 24), Sir P. Cunliffe-Lister stated that in the year 1925, 17,031,000 tons of coal were carbonised by authorised gas undertakings in Great Britain. 283,818 million cubic feet of gas were produced, of which 231,348 million cubic feet were coal gas; 11,398,000 tons of coke and breeze were made and 194,168,000 gallons of tar. He was unable to state the value of these products.

In addition, 743,000 tons of coal were carbonised and 419,000 tons of coke and breeze made by non-statutory gas undertakings.

These figures excluded the production at coke ovens, where 16,394,000 tons of coal were carbonised, and 11,009,000 tons of coke made during 1925.

British Industries Fair

Sir Burton Chadwick, in reply to Lieut.-Commander Kenworthy (House of Commons, May 26), stated that the committee appointed by the Board of Trade in 1921 to consider the best policy to be adopted in respect of British Industries Fairs, were opposed to new sections of the Fair being initiated in other provincial centres and favoured its continued concentration in London and Birmingham, and decided that if any fair outside London was desirable at all, Birmingham was probably the best centre in which to hold it, largely because it could be reached in a day from London.

Vitamin Research

Asked by Col. Harry Day if his attention had been drawn to the process discovered in Germany for manufacturing synthetic vitamins, Mr. Neville Chamberlain, in a written reply, stated that the investigations referred to followed the lines of work of fundamental importance done recently in the National Institute for Medical Research at Hampstead, where the production of a vitamin of intense potency had been effected by the action of light upon a known chemical substance in pure form.

"I am glad to be able to say," Mr. Chamberlain added, "that this country continues to take the leading position in vitamin research, which it has held throughout. I am informed that much important work upon the various vitamins, including that already mentioned, is in progress in various laboratories, and in large part with the support of public funds administered by the Medical Research Council."

Key Industry Duty

Sir P. Cunliffe-Lister, in reply to a question by Mr. Herbert Williams (House of Commons, May 31), has issued a statement showing that the value of the imported goods upon which key industry duty was paid during the first four months of 1926 and 1927 was £463,678 and £483,058 respectively.

The largest figures are those in respect of synthetic organic chemicals (other than finished and intermediate organic dyestuffs and colours), fine chemicals, and fermentation chemicals, the value of which imports in the first four months of last year was £176,375, and in the corresponding four months of the present year £187,956.

The value of optical glass, optical elements, and optical instruments imported was £95,778 in the former period and £100,496 in the latter period (when component parts of optical instruments were also included); of scientific glass ware, lamp blown ware, and laboratory porcelain, £46,641 and £43,899; of scientific instruments, gauges, and measuring instruments of precision, £34,620 and £48,326 (the latter figure also including component parts of scientific instruments); and of metallic tungsten, ferro-tungsten, manufactures of metallic tungsten and rare earth-compounds, £5,760 and £13,636.

Alcohol Substitutes to be Duty-Free

Decision of Committee

In a recent statement in the House of Commons, Mr. McNeill indicated that an investigation into the subject of substitutes for ethyl alcohol had been made by the Department concerned and the following conclusions had been reached: (1) Purified methyl alcohol will remain within the scope of the Spirit Duty. But no duty will be payable so far as it is used for industrial purposes, and the official supervision of manufacture and duty-free use will be reduced to the minimum consistent with the safety of the Revenue. Moreover, provision has been made in Clause 14 (1) of the Finance Bill for the extension to methyl alcohol of an appropriate Excise allowance on the lines of that now payable on ethyl alcohol manufactured in this country and used duty-free for industrial purposes, in order to compensate for the expense involved in conforming to Excise restrictions on manufacture.

(2) As at present advised, it is not proposed to bring any other substance, which may be used as a substitute for ethyl alcohol, within the scope of the Spirit Duty. It is, however, proposed in Clause 15 of the Finance Bill to take power to collect information as to the importation, manufacture, distribution and use of the higher alcohols, and to require manufacturers of these substances to register with the Customs and Excise Department.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

51 (*Adrenolyte*).—"Can you assist us in tracing any firm manufacturing a chemical product called Adrenolyte?"

52 (*Anhydrite*).—An inquirer is anxious to be put into touch with any firms interested in Anhydrite.

Replies

49 (*Washing Fluid for Bottles, May 28*).—Mr. J. H. Lester, of Monton, Eccles, writes:—"I suggest that your engineer should consider the use of hydrofluoric acid for washing bottles. The chemist who hears this suggestion for the first time, will declare it to be preposterous—for strong HF acid dissolves glass! It is, nevertheless, a fact within my own certain knowledge, that *very dilute* hydrofluoric acid is used for washing windows on roofs in our dirty Manchester district. It replaced hydrochloric acid.

From Week to Week

MRS. G. C. CLAYTON, the wife of Dr. G. C. Clayton, M.P., was presented at Court last week.

MR. ARNOLD HIGHLEY, a director of the Bradford Dyers' Association, has been adopted as Conservative candidate for the Exchange Ward at the next Bradford municipal election.

SEVERAL MEN WERE BURNED by molten metal after an explosion which occurred on May 27 at the foundry of H. Edie and Co., Ltd., of Bow, E. They were taken to St. Andrew's Hospital, Bromley-by-Bow, and one, John Lees, of Poplar, was detained suffering from burns.

A COLLISION ON SATURDAY EVENING at Seacroft, Leeds, between a motor-car and a motor-cycle combination resulted in the death of the sidecar passenger, Mr. William Middleton (47), foreman dyer, of the Bradford Dyers' Association, Mill Green Bottom Works, Yeadon.

THE CIVIC MEMORIAL by which Nottingham has decided to honour Sir Jesse Boot in recognition of his many benefactions will consist of the embellishment of the library at the new University now being built at Highfields. A plaque commemorating Sir Jesse, who is the virtual founder of the new University, will be placed on the wall.

AN EXHIBITION is being held at the Villa Olmo, Como, Italy, in commemoration of the first centenary of the death of Alessandro Volta, the Italian physicist. Among those present last week at the opening of an exhibition of relics and other appropriate objects were the King of Italy, and Signo Belluzzo, Minister of National Economy.

MR. ERNEST LUNGE, for many years manager of the development, and in recent years mainly occupied with the foreign relations of the company, has recently joined the board of Courtaulds, Ltd. Mr. Lunge is also director of Soie Artificielle (Calais) and Snia Viscosa, and managing director of Glanzstoff-Courtaulds, whose important works at Cologne are nearing completion.

RESTARTED AS RECENTLY as January 5, after eight months complete idleness, due to the coal dispute, Gjers Mills and Co.'s iron ore smelting furnaces were damped down this week and approximately 500 men are out of employment. The directors state that the crucial fact had to be faced that there was no adequate demand for the firm's products at economical prices.

IT IS ANNOUNCED in Berlin that the following countries have joined the International Superphosphate Manufacturers' Association, which held its first meeting this week :—England, Belgium, Denmark, Finland, France, Germany, Holland, Jugoslavia, North Africa, Norway, Austria, Poland, Sweden, Switzerland, Spain, South Africa, Czechoslovakia, and Hungary. It is expected that Italy and North America will also join shortly.

AN ALARMING OUTBREAK of fire occurred between two and three o'clock on Saturday morning at Alloa Corporation Gas Works. The tar distilling tank exploded and took fire, and very quickly barrels of tar alongside became ignited. Attempts to subdue the fire were difficult, and the seriousness of the situation was intensified by the fact that a large gasometer was only 15 ft. from the blazing barrels, while overhead were benzol and refined oil tanks. The outburst was got under control after two hours' strenuous exertion by the fire brigade.

AN ACTION FOR BREACH OF CONTRACT was brought against the Durasil Co., Ltd., King Street, St. James's, London, by Mr. C. H. Windscheugl, of 1, Leadenhall Street, London, on May 25, at the Mayor's and City of London Court. Plaintiff claimed £53 6s. 5d. for damages for non-acceptance of a quantity of alum and citric acid under a contract. For the plaintiff it was stated that defendants had only taken up a small quantity of the goods, which were delivered as demanded by defendants. The amount claimed represented the difference between the price of the balance at which the goods were sold by plaintiff and the price realised in January, 1927, nine months after the contract was made. A defence was filed by the defendants alleging that the goods were not in accordance with samples, but there was no appearance at the trial, and the judge awarded plaintiff the full amount of damages and costs.

APPLICATIONS ARE INVITED for the following appointments :—A Biochemist for the East Malling Research Station, near Maidstone. The Secretary. June 30.—A Principal of the Battersea Polytechnic, London, S.W.11. The Clerk. June 13.—A Professor of Organic Chemistry in the Indian Institute of Science, Bangalore. Dr. M. O. Forster, c/o Jeremiah Lyon and Co., 4, Corbet Court, London, E.C.3. June 29.—Lecturer in Chemistry, Regent Street Polytechnic. The Director of Education, The Polytechnic, 309, Regent Street, London, W. Before September.—Two Robert Blair Scholarships in Science and Technology, value £450 each for one year. The Education Officer (T.2.a), County Hall, London, S.E.1. June 18.—Demonstrator in Organic Chemistry in Bedford College for Women, Regent's Park, London. The Secretary. June 8.—Lecturer in Chemistry in the University of Reading. The Registrar. June 10.

SIR HARRY MCGOWAN has been elected to a seat on the board of the Midland Bank.

MR. JOHN P. HARRIS, formerly chief chemist of the Phœnix Cotton Oil Co., Memphis, Tennessee, has been appointed to take charge of the Chicago office of the Industrial Chemical Co., of New York.

RECENT WILLS INCLUDE :—Dr. Adolf Liebmann, Ph.D., M.A., of Weybridge, Surrey, consulting chemist, who willed £100 each to Manchester Royal Infirmary and the Wood Street Mission, Deansgate, Manchester, £44,482.

RESEARCH WORKERS AND SCIENCE MASTERS from all parts of South Wales participated last week in a visit, at the invitation of the Council of the University College of South Wales and Monmouthshire, to the new research and science laboratories now being erected in Cathays Park, Cardiff.

FORTY STUDENTS from the Northampton Technical College paid a visit to the Wellcome Chemical works, Dartford, on May 26. They inspected the experimental, control, and analytical laboratories of the firm, and were shown many processes of the manufacture of photographic and fine chemicals and drugs.

THE 1927 INTERNATIONAL CONFERENCE of Leather Trades Chemists will be held at the Leathersellers' Hall, St. Helen's Place, London, E.C.3, on September 12, 13, and 14. Further particulars may be obtained on application to Mr. M. C. Lamb, hon. organising secretary, 176, Tower Bridge Road, London, S.E.1.

DR. STEPHEN MIALL, a director of Associated Lead Manufacturers, Ltd., is chairman of Blount and Co., Ltd., a new company with a capital of £150,000. The subscription list for 100,000 £1 7½ per cent. cumulative preference shares and 1,000,000 ordinary shares of 1s. was opened on Monday and the issue was over-subscribed.

UNIVERSITY NEWS : A senior studentship for biochemistry has been awarded by the Royal Commissioners for the Exhibition of 1851 to Mr. R. Hill, M.A., of Emmanuel College, Cambridge. A Sudbury-Hardyman Prize of £20 has been awarded to Mr. C. Rimington, of Cambridge University, for a dissertation on biochemistry.

MR. THOMAS HOPKINS, M.Sc., F.I.C., a young Llanelly research worker, had conferred on him last week the degree of Doctor of Philosophy by the Senate of the University of London for a thesis on the discovery of a new class of dye, which is to be called "Saint Elli Purples," after Dr. Hopkins's home town. For some time Dr. Hopkins was on the research staff of Nobels Explosives, Ltd., and is at present at the head of the Chemical Department of the Barrow Technical School.

THE CASTNER KELLNER ALKALI CO., Widnes, recently completed the first thirty years of its existence. The original experiments which laid the foundation of the firm's success were carried out at the Aluminium Works at Oldbury under the direction of the late Mr. Kellner. It was not until it was decided to build a works at Weston Point for the electrolytic manufacture of heavy chemicals that the present company came into existence, chiefly through the efforts of Sir William Mather, of Mather and Platt's.

A WELL ATTENDED MEETING of the National Association of Clayworks' Managers was held at the Royal Victoria Hotel, Sheffield, on May 24, under the chairmanship of Mr. R. Thompson, when Mr. F. W. Thrupp, of Messrs. Richard Thomas and Co., Ltd., Scunthorpe, gave a paper on "Some Chemical Reactions during Firing in the Brick Kiln." An extensive discussion took place with particular reference to "scumming" during the actual burning of the bricks, and to the "efflorescence" which takes place in certain instances when the finished bricks are used during the process of building, the author and others suggesting varied reasons for these phenomena. The proceedings closed with a hearty vote of thanks to Mr. Thrupp for his paper.

THE DIRECTORS OF LOW TEMPERATURE CARBONISATION announce the successful completion of lighting up of the first of five batteries of retorts for the large scale production of "Coalite." The remaining batteries are nearing completion, and, when lit up, will form a complete plant of four batteries in day and night operation, and one in reserve, with a throughput of 200 tons of coal per day. The production will be continuous, and a conservative statement of the weekly output, based on the report of the Government Fuel Research Board issued in 1924 (since when the plant has been greatly improved and modernised), is : "Coalite" smokeless fuel, 1,020 tons ; motor spirit, 1,820 gallons ; oils for lighting, burning, lubricating, etc., 26,500 gallons ; sulphate of ammonia, 20,000 lb. ; and rich gas, 7,000,000 c. ft.

Obituary

PROFESSOR GUSTAV TSCHERMAK, the eminent mineralogist (emeritus professor in the University of Vienna), at the beginning of May, aged 91.

MR. T. W. STAINER HUTCHINS, on May 26, at Hartford Lodge, Northwich, aged 47. Mr. Hutchins was managing director of Electro Bleach and By-products, Ltd., chemical manufacturers, near Middlewich. He was a mechanical and electrical engineer, and among his inventions was a rotary retort for the slow carbonisation of coal.

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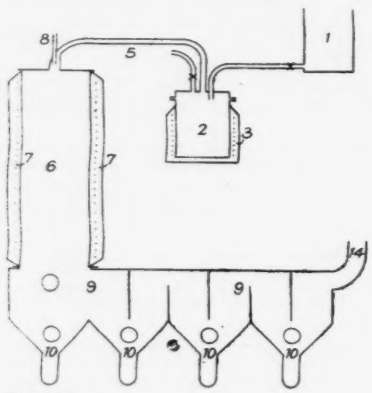
The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

269,677. PURE IRON, PRODUCTION OF. J. Y. Johnson, London. From I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, January 23, 1926.

Pure iron is obtained by the decomposition of iron carbonyl on introducing the latter into a heated vessel at a considerable distance from the heated walls, so that decomposition takes place in the heated space and not in contact with the walls. The iron carbonyl may be injected into the upper end of a wide externally heated pipe in line with its axis. The temperature of the vessel should be between 100°–400° C. The temperature must be sufficiently high to decompose the iron carbonyl



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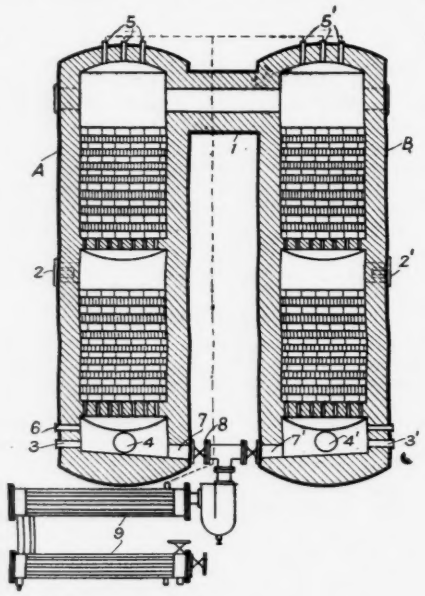
completely and rapidly, but must not be substantially above 400° C. since the iron would then be oxidised by the carbon monoxide with deposition of carbon, and the carbon monoxide is itself decomposed to carbon dioxide and carbon. As these two reactions are exothermic, while the decomposition of iron carbonyl is endothermic, the occurrence of these secondary reactions would be indicated by a rise of temperature in the vessel. The temperature should be about 250°–300° C. Decomposition of the iron carbonyl may also be effected at a much higher temperature, *e.g.*, 900° C., provided the iron is prevented from coming into contact with carbon monoxide during the cooling to 400° C. The temperature of decomposition can be reduced and the quantity decomposed in a given time in a vessel of a certain volume can be increased by the presence of small quantities of ammonia, finely divided iron, or other finely divided substances. The iron obtained is a very fine powder which is free from sulphur, phosphorus, silicon, arsenic, copper, manganese, and other metals. The finely divided iron may be separated from the gases, leaving the furnace by passing them through melted paraffin wax.

Iron carbonyl passes from the container 1 to the evaporator 2 having a heating jacket 3, and the vapour passes by a pipe 5 to a wide vessel 6 heated by a jacket 7. Catalysts may be added through a nozzle 8. The iron powder is separated in dust chambers 9 having collecting chambers 10, and the carbon monoxide is withdrawn through the pipe 14.

269,711. OIL OR TAR, MANUFACTURE OF GAS—BY CRACKING. K. N. Wannebo, 1, Kanaltorget Göteborg, Sweden. Application date, March 16, 1926.

The generator consists of two vertical cylindrical steel shells A, B, connected at the top by a passage 1. The shells are lined with firebrick, and divided into compartments by two or more arches of perforated firebrick supporting firebrick checkerwork. Atomisers 5, 5^1 are provided at the top for the preheated oil or tar, and inlets 2, 2^1 for air and fuel for heating the generators before starting the process. Combustion air for gas making is admitted at 3, 3^1. The generator A is first heated by firing from 2, and the combustion products pass through the passage 1 down through the generator B to the outlet 4^1, while the openings 3, 4, 6 are closed. The generator B is then heated in a similar manner, and the heating continued alternately until the temperature reaches the required point. The openings 2, 2^1 are then closed and the burners removed, and oil or tar is injected through 5, 5^1, with both gas offtakes 7, 7^1 open and all other valves closed. The valve 8 is then closed and combustion air admitted at 3 so that it is heated in rising through



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the checkerwork, and burns the carbon which was deposited in the upper part of the generator with liberation of carbon monoxide. This combustion supplies sufficient heat for gasifying the injected oil or tar. The combustion products and oil vapour pass down through B, depositing carbon and lampblack, and passes out at 7^1 to the heat interchanger 9. The air inlet 3 is then closed and steam is admitted at 6 so that it reacts with the deposited carbon in the upper part of the generator to produce water gas. The gas-making operation is then transferred to the generator B. A gas mixture can be obtained having the calorific value of 550 B.T.U. per cubic foot.

269,961. ABSORBENT CARBON, MANUFACTURE OF. E. Urbain, 30, Avenue de l'Observatoire, Paris. Application date, January 20, 1926.

Different samples of absorbent charcoal have different absorption powers for the same gas, and the ratio of their activities is not the same for different gases. In this invention, charcoals of different absorbing powers are obtained from the same raw material by conducting the manufacture so as to obtain the final products in different states of density. The pulverised charcoal is mixed with a binder, and the plastic material is extruded or moulded before calcination. The density of the product is varied by varying the proportion of water in the agglomerant or binder, and the pressure to which the mixture is subjected. Thus the same raw material will yield two varieties of charcoal having densities of 150 grams and 450 grams per litre. The charcoal of lower density has the greater absorbent power for chloropicrin and smaller absorbent power for chlorine. Reference is directed in pursuance of Section 7, Sub-section 4 of the Patents and Designs Acts of 1907 and 1919, to Specification No. 218,242, and in pursuance of Section 8, Subsection 2, to Specification No. 247,241.

269,970. SULPHURISED DERIVATIVES OF PHENOLS AND NAPHTHOLS, MANUFACTURE OF,—AND THEIR APPLICATION AS MORDANTS. Fabriek van Chemische Producten, Schiedam, Holland, and E. Kraus, 125, Juliana van Stolberglaan, The Hague, Holland. Application date, January 26, 1926.

These products are obtained by heating a dry alkali metal salt of a phenolic body with sulphur in a non-aqueous medium which is preferably a phenol in which the phenolate is suspended or dissolved. The term phenol includes its homologues and substitution products, and also naphthols. The required products are only obtained when there are less than four equivalents of free phenol to each equivalent of alkali phenolate. These products differ from those obtained from sulphur and phenols in the absence of a base and in the presence of iodine, and from those obtained by reaction between sulphur and phenol in an aqueous medium. A phenol is mixed with sufficient caustic alkali solution to convert more than one-fifth of the phenol into alkali phenolate, and the water is evaporated off until a dry alkali phenolate is obtained dispersed in the excess of phenol. Sulphur is added and the mixture is heated for some hours at 180° C. The alkaline solutions of the products have the property of becoming fixed on cotton without production of colour, and of fixing basic dyestuffs. The products may be treated with a sulphite and an aliphatic aldehyde such as acetaldehyde or formaldehyde yielding a solution which may be precipitated on adding an acid. The solution on heating to 70°–90° C., no longer precipitates on adding an acid. The condensation product can be precipitated by the addition of salt, preferably after neutralising, and is useful for tanning purposes. Several examples are given.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention:—245,165 (I.G. Farbenindustrie Akt.-Ges.), relating to condensation products of the anthraquinone series, see Vol. XIV, p. 254; 247,177 (G. Patart), relating to synthesis of higher alcohols, see Vol. XIV, p. 385; 247,932 (G. Patart), relating to synthesis of methanol and liquid hydrocarbons, see Vol. XIV, p. 443; 258,242 (Metropolitan-Vickers Electrical Co., Ltd.), relating to chromium plating, see Vol. XV, p. 47 (Metallurgical Section); 258,243 (Naamlooze Vennootschap Philips' Gloeilampenfabrieken), relating to serparation of hafnium and zirconium, see Vol. XV, p. 501; 260,550 (L. A. Van Dyk), relating to polymerised vinyl chloride, see Vol. XVI, p. 29; 264,480 (Norsk Hydro-Elektrisk Kvaelstofaktieselskab), relating to granulated nitrate of lime, see Vol. XVI, p. 317; 264,510 (L. and M. Meyer), relating to copper sulphate, see Vol. XVI, p. 317; 264,823 (Aluminum Co. of America), relating to sodium aluminate, see Vol. XVI, p. 339.

International Specifications not yet Accepted

267,954. ALDEHYDES. H. Rupe, 8, Feierabendstrasse, Basle, Switzerland. International Convention date, March 22, 1926.

Unsaturated aldehydes are obtained by treating an acetylene alcohol which contains a free hydrogen atom in the acetylene group with an acid or acid derivative such as formic, acetic, hydrochloric, or sulphuric acids, or acetic anhydride. The acetylene alcohols may be made by treating the sodium compound of a ketone with acetylene. Examples are given of the preparation of cyclohexylidene-acetaldehyde, β-methylcinnamic aldehyde, isopropylidene-acetaldehyde, *sec*-butylidene-acetaldehyde, 3-methyl-cyclohexylidene-acetaldehyde, and 2-methyl-5-isopropyl-cyclohexylidene-acetaldehyde.

267,958. CRACKING HYDROCARBONS. S. Stransky, 5A, Schwarzenbergplatz, Vienna, and F. Hansgirg, 6, Laudongasse, Vienna. International Convention date, March 18, 1926.

Hydrocarbons are cracked by means of electric resistance heaters having large heating surfaces distributed throughout the liquid space of the still, so that the light hydrocarbons formed are rapidly vaporised and removed.

267,959. REFINING OILS. S. Stransky, 5A, Schwarzenbergplatz, Vienna, and F. Hansgirg, 6, Laudongasse, Vienna. International Convention date, March 18, 1926.

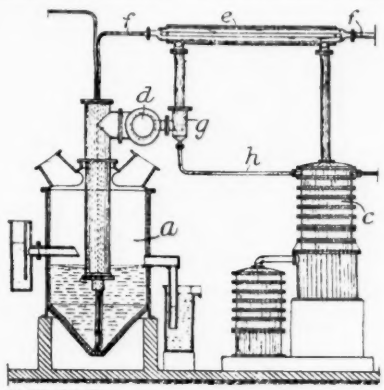
Low boiling oil fractions are purified by agitation with 5 per cent. of dry aluminium chloride below 35° C.

267,985. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, March 22, 1926.

Wool and silk mixtures are dyed by employing pyrazolone-azo dyestuffs containing one or more alkyloxy, aryloxy, or aralkyloxy groups, either in the diazo component or in the coupling component or both. Dyestuffs employed include *o*-aminoanisol → 1 : 4¹-sulphophenyl-3-methyl-5 pyrazolone, *o*-aminodiphenylether → 1 : 4¹-sulphophenyl-3-methyl-5-pyrazolone, 3-amino-1-methyl-4-phenolbenzylether→1 : 4¹-sulphophenyl-3-methyl-5-pyrazolone, *o*-aniline-sulphonic acid→1 : 4¹-methoxyphenyl-3-methyl-5-pyrazolone, *p*-aminodiphenylether-*o*-sulphonic acid → 1-phenyl-3-methyl-5-pyrazolone.

268,309. AMMONIUM SULPHATE. F. J. Collin Akt.-Ges. Zur Verwertung von Brennstoffen und Metallen, Dortmund, Germany. International Convention date, March 24, 1926.

Ammoniacal gases are supplied by a pipe *d*, and vapours from a distilling apparatus *c*, to a saturator *a*, which is dis-



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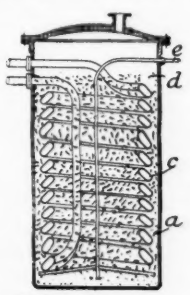
charged by compressed air admitted through a pipe *f*. The vapour from the distilling apparatus passes through a chamber *e* to heat the compressed air in a pipe coil in the chamber *e*. Condensate returns through a vessel *g* and pipe *h* to the still *c*.

268,323. CRACKING OILS. S. Seelig, 65, Behrenstrasse, Berlin. International Convention date, March 25, 1926.

Oil is supplied through a pipe *e* to the bottom of a vessel *a* containing molten metal, and heated externally. The oil



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causes an upward current through the central part and the molten metal descends on the outside. Fluctuations of temperature in the cracking part are avoided by means of a helix *c* which may be exhausted or through which steam, air, or other gas may be passed.

268,372. LIQUID FUEL. Koppers Co., 800, Union Trust Building, Pittsburg, U.S.A. (Assignees of H. J. Rose and W. H. Hill.) International Convention date, March 25, 1926.

Coal is dissolved without decomposition in water gas tar, coal tar, or other cyclic hydrocarbon oil heated to 200°–400° C., mineral impurities remaining undissolved. The coal can be precipitated by adding benzol. The product may be used as liquid fuel, or it may be briquetted. In an example, coal

containing 9 per cent. of ash and 3 per cent. of sulphur is heated to 270°–320° C. with water gas tar distillate, and the undissolved material extracted with benzene. The coal is re-precipitated with ligroin and then contains 0·46 per cent. of ash and 1·39 per cent. of sulphur.

268,375. SULPHONIC ACIDS. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, March 27, 1926. Addition to 250,241.

Specification 250,241 (see THE CHEMICAL AGE, Vol. XIV, p. 578) describes the treatment of an aromatic hydrocarbon with a higher aliphatic or alicyclic alcohol and chlorosulphonic acid, and the aromatic hydrocarbon is now replaced by a sulphonic acid as anhydrous as possible, which becomes further sulphonated. Thus, naphthalene may be treated with chlorosulphonic acid at 135°–145° C., and the mixture cooled to 70° C. and butyl alcohol and chlorosulphonic acid added. The sodium salt of the product can be used as a wetting or emulsifying agent.

LATEST NOTIFICATIONS.

271,425. Products obtained with cellulose derivatives and methods of reproducing the same. British Celanese, Ltd. May 21, 1926.

271,440. Process of producing soluble hydrates. Meyerhofer, A. F. May 19, 1926.

271,451. Process for transforming hydrocarbons of high boiling-point into liquids of low boiling-point. I. G. Farbenindustrie Akt.-Ges. May 20, 1926.

271,452. Process for the manufacture and production of hydrocarbons. I. G. Farbenindustrie Akt.-Ges. May 22, 1926.

271,467. Manufacture of acid derivatives of the α-α¹-dimethyl-γ-hydroxy-piperidine-β-carboxylic acid esters. I. G. Farbenindustrie Akt.-Ges. May 17, 1926.

271,474. Manufacture of agents for emulsifying, purifying, wetting, or the like. I. G. Farbenindustrie Akt.-Ges. May 19, 1926.

271,475. Photographic emulsions. I. G. Farbenindustrie Akt.-Ges. May 20, 1926.

271,480. Fungicide. I. G. Farbenindustrie Akt.-Ges. May 18, 1926.

271,482. Process for the production of synthetic ammonia. Müller, K. May 19, 1926.

271,514. Fumigating or the like mixtures containing hydrocyanic acid and process for their production. Deutsche Gold-und Silber-Scheideanstalt vorm. Roessler. May 22, 1926.

271,523. Catalyser for chemical reactions of carbon monoxide, more particularly applicable for the preparation of hydrogen and methyl alcohol. Grenier, R. J. A. May 22, 1926.

271,524. Process of disintegrating vegetable fibre bundles. I. G. Farbenindustrie Akt.-Ges. May 21, 1926.

Specifications Accepted with Date of Application

246,142. Soluble salts of organic compounds of an acid character, Cyclic process of producing. M. Buchner. January 16, 1925.

248,726. Condensation products produced from phenols and aldehydes, Process for the purification of. Bakelite Ges. March 6, 1925. Addition to 247,956.

249,833. Fermentation processes for the production of butyl alcohol and acetone. Commercial Solvents Corporation. March 30, 1925.

251,294. Water soluble condensation products, Manufacture of. I.G. Farbenindustrie Akt.-Ges. April 23, 1925.

252,677. Dense iron and iron alloys directly out of oxide ores, Method of producing. H. G. E. Cornelius. May 26, 1925.

257,221. Molten baths of easily oxidisable metals, Protection of. G. Michel. August 18, 1925.

257,885. Homogeneous deposits from rubber latex, Process for the production of. Anode Rubber Co., Ltd. September 4, 1925.

263,730. Separating metallic base reaction products from other derivatives in the treatment of hydrocarbon oils, Process for. Litharge Recovery Corporation. December 26, 1925.

258,854. Dyestuffs, Manufacture and application of. Soc. of Chemical Industry in Basle. September 24, 1925.

262,120. Catalytic dehydrogenations. I.G. Farbenindustrie Akt.-Ges. November 30, 1925.

264,124. Glycols, Manufacture of. Carbide and Carbon Chemicals Corporation. January 7, 1926.

270,778 and 271,023. Anthraquinone intermediates, Manufacture and production of. British Dyestuffs Corporation, Ltd., A. Shepherdson, H. N. Bunbury, and W. W. Tatum. January 11, 1926.

270,779. Anthraquinone intermediates, Manufacture and production of. British Dyestuffs Corporation, Ltd. and W. W. Tatum. January 11, 1926.

270,809. Acetic anhydride, Purification of. British Celanese, Ltd., and W. P. Skertchly. February 13, 1926.

270,820. High-acid phosphates, Process for the production of. E. C. R. Marks. (*Parker Rust Proof Co.*) February 16, 1926.

270,824. Light Aluminium alloys. H. G. C. Fairweather. (*Etablissements Metallurgiques de la Gironde.*) February 17, 1926.

270,826. Sulphuric acid chambers. Packhards and J. Fison (Thetford), Ltd., and R. T. Maudsley. February 17, 1926.

270,840. Anthraquinone derivatives, Manufacture of. O. Y. Imray. (*I.G. Farbenindustrie Akt.-Ges.*) February 25, 1926.

270,852. Tar and ammonia from fuel gases, Separation of. W. C. Holmes and Co., Ltd., J. Parker, and D. M. Henshaw. March 5, 1926.

270,921. Lignite, peat, non-coking coals, and similar carbonaceous matter, Apparatus for use in drying and distilling. H. Debauche. July 20, 1926.

270,957. Fertilisers. E. Cerasoli. October 16, 1926.

270,988-9. Sulphuric acid, Manufacture of. H. Petersen. October 12 and December 16, 1926.

271,016. Hydrated chromic chloride, Manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) July 26, 1926.

271,018. Gas-purifying apparatus. Deutsche Erdol-Akt.-Ges. and K. Bomcke. March 8, 1927.

244,462. Anthraquinone derivatives, Manufacture of. Badische Anilin und Soda Fabrik. December 9, 1924.

244,764. Sulphuric acid, Process of manufacture. F. G. Nichols.

270,974. Alloys intended as a substitute for platinum. H. Limbourg. November 27, 1926.

Applications for Patents

British Celanese, Ltd. Production of artificial filaments, etc. 13,785. May 23.

British Dyestuffs Corporation, Ltd., Davidson, A., and Shepherdson, A. Manufacture of vat dyestuffs. 14,217. May 26.

British Dyestuffs Corporation, Ltd., and Mendoza, M. Manufacture of dyes. 14,352. May 27.

Carpmael, W., I. G. Farbenindustrie Akt.-Ges. Process for N-alkylation by means of amino-alkyl-halogenides. 13,952. May 24.

Carpmael, W., I. G. Farbenindustrie Akt.-Ges. Manufacture of substituted 4.4¹-dihydroxybis-acylamino-arsenobenzenes. 14,343. May 27.

Compagnie de Béthune. Preparation of ethyl-sulphuric acid. 14,211. May 26. (France, June 24, 1926.)

Frischer, H. Methods of producing volatile acids. 14,056. May 25. (Germany, May 27, 1926.)

Gerber, W. Partition means for fluid containers for dyeing-machines. 13,907. May 24.

Holliday and Co., Ltd., L. B., and Shaw, C. Dyestuffs. 14,393. May 28.

I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of artificial masses containing casein. 13,821. May 23.

I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of amines of the hydro-aromatic-aliphatic series. 13,822. May 23.

I. G. Farbenindustrie Akt.-Ges., and Imray, O. Y. Manufacture of black copying colours. 13,965. May 24.

I. G. Farbenindustrie Akt.-Ges. Process for N-alkylation by means of amino-alkyl-halogenides. 13,952. May 24.

I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of carbon disulphide. 14,180. May 26.

I. G. Farbenindustrie Akt.-Ges. Manufacture of substituted 4.4¹-dihydroxybis-acylamino-arsenobenzenes. 14,343. May 27.

I. G. Farbenindustrie Akt.-Ges. Production of valuable products from coal, etc. 13,820. May 23. (Germany, June 1, 1926.)

I. G. Farbenindustrie Akt.-Ges. Process of disintegrating vegetable fibre bundles. 13,842. May 23. (Germany, May 21, 1926.)

I. G. Farbenindustrie Akt.-Ges. Process for dyeing acetate silk. 13,966. May 24. (Germany, July 24, 1926.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of α-anthraquinonyl ketones. 14,091. May 25. (Germany, May 25, 1926.)

I. G. Farbenindustrie Akt.-Ges. Producing direct positives by reversal. 14,092. May 25. (Germany, December 24, 1926.)

I. G. Farbenindustrie Akt.-Ges. Carrying out exothermic reactions. 14,101. May 25. (Germany, July 10, 1926.)

I. G. Farbenindustrie Akt.-Ges. Production of dyeings on cellulose esters, etc. 14,178. May 26. (Germany, June 8, 1926.)

I. G. Farbenindustrie Akt.-Ges. Production of valuable hydrocarbons from mineral oils, etc. 14,179. May 26. (Germany, June 11, 1926.)

Imray, O. Y., and Monsanto Chemical Works. Catalytic process for oxidation. 14,090. May 25.

International Copperclad Co. Apparatus for electrodeposition. 14,372. May 28. (United States, August 19, 1926.)

Ormandy, W. R. Manufacture of nitric acid. 14,108. May 25.

Ruzicka, C. Production of acetic anhydride. 14,328. May 27.

Silica Gel Corporation. Separation of gases, etc. 14,095. May 25. (United States, June 24, 1926.)

Soc. of Chemical Industry in Basle. Producing fast tints on vegetable fibres, etc. 14,332. May 27. (Switzerland, May 27, 1926.)

Soc. of Chemical Industry in Basle. Manufacture of products for dyestuffs. 14,333. May 27. (Switzerland, May 29, 1926.)

Titanium Alloy Manufacturing Co. Methods of obtaining zirconium compounds. 13,808. May 23. (United States, May 27, 1926.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton for home market, 1-cwt. drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—8½d. to 9d. per lb. Crude 60's, 2s. 6d. to 2s. 8d. per gall.

ACID CRESYLIC 99/100.—2s. 8d. to 2s. 9d. per gall. 97/99.—2s. 1½d. to 2s. 3d. per gall. Pale, 95%, 2s. to 2s. 1½d. per gall. Dark, 1s. 9d. to 1s. 10d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOLE.—Crude 65's, 1s. 0¾d. to 1s. 1¾d. per gall., ex works in tank wagons. Standard Motor, 1s. 9d. to 2s. 2d. per gall., ex works in tank wagons. Pure, 1s. 8d. to 2s. 6d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 9d. to 2s. 0½d. per gall. Firm. Pure, 1s. 10d. to 2s. 3½d. per gall.

XYLOL.—1s. 11d. to 2s. 4d. per gall. Pure, 2s. 6d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6¾d. to 9d.; middle oil, 7½d. to 8d. per gall. Heavy, 8½d. to 9d. per gall. Salty, 7d. per gall. less 1½%.

NAPHTHA.—Crude, 8d. to 9d. per gall. according to quality. Solvent 90/160, 1s. 2d. to 1s. 11d. per gall. Solvent 95/160, 1s. 6d. to 1s. 7d. per gall. Solvent 90/190, 1s. 3d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £7 10s. per ton. Whizzed or hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £13 10s. per ton. Quiet. Flaked, £12 10s. per ton, according to districts.

PITCH.—Medium soft, 70s. to 80s. per ton, according to district; nominal.

PYRIDINE.—90/140, 7s. 6d. to 13s. per gall. Nominal. 90/180, 4s. 6d. to 5s. per gall. Heavy, 5s. to 8s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 9d. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—1s. 6d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7½d. per lb. naked at works.

ANILINE SALTS.—7½d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—4½d. per lb. Fair inquiry.

m-CRESOL 98/100%.—3s. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8½d. per lb. Only limited inquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb. d/d.

R. SALT.—2s. 2d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—7½d. to 8d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £8 10s. to £9 5s. per ton. Grey, £15 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£6 15s. to £10 per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall. 16° Tw.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 9d. to 4s. per gall., 60% O.P. Solvent, 3s. 11d. to 4s. 3d. per gall., 40% O.P.

WOOD TAR.—£4 to £5 10s. per ton and upwards, according to grade.

BROWN SUGAR OF LEAD.—£40 15s. to £41 10s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.
ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb.
ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz.; 500 oz. lots, 1s. per oz.
ACID, BORIC B.P.—Crystal, £41 per ton; powder, £45 per ton. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 6d. to 1s. 7½d per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P.—1s. 3½d. to 1s. 5½d. per lb. Technical.—11¼d. to 1s. per lb.
ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.
ACID, TARTARIC.—1s. 3¾d. per lb., less 5%. Firm market.
AMIDOL.—9s. per lb., d/d.
ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.
AMIDOPYRIN.—8s 6d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 9d. per lb., according to quantity.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: lump, 1s. per lb.; powder, 1s. 3d. per lb.
ATROPINE SULPHATE.—11s. per oz. for English make.
BARBITONE.—6s. 6d. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. to 10s. per lb.
BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.
BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.
BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.
BISMUTH NITRATE.—5s. 9d. to 6s. per lb.
BISMUTH OXIDE.—13s. 9d. to 14s. per lb.
BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.
BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11½d. per lb.
BORAX B.P.—Crystal, £24 per ton; powder, £25 per ton. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Potassium, 1s. 10d. to 2s. per lb.; sodium, 2s. 1d. to 2s. 3d. per lb.; ammonium, 2s. 3d. to 2s. 5d. per lb., all spot.
CALCIUM LACTATE.—1s. 2¾d. to 1s. 4¾d.
CHLORAL HYDRATE.—3s. 2d. to 3s. 5d. per lb., duty paid.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHER METH.—1s. 1d. to 1s. 11½d. per lb., according to sp. gr. and quantity. Ether purif. (Aether B.P., 1914), 2s. 3d. to 2s. 4d., according to quantity.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—5s. per lb.
HEXAMINE.—2s. 4d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked.
HYDROQUINONE.—4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.
IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.
MAGNESIUM CARBONATE.—Light Commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy Commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 18s. 3d. per lb. net; Synthetic, 10s. 6d. to 12s. per lb., according to quantity; Liquid (95%), 12s. per lb.; Detached Cryst., 14s. 6d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 9d. per lb.
METHYL SULPHONAL.—11s. per lb.
METOL.—11s. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—3s. per lb.
PHENAZONE.—4s. 6d. per lb.
PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—100s. per cwt. less 2½% for ton lots.
POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 5d. per lb. for 1 cwt. lots.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.
QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. for 1000 oz. lots in 100 oz. tins.
RESORCIN.—4s. per lb., spot.
SACCHARIN.—55s. per lb.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—2s. to 2s. 2d. per lb. for 1 cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.
SULPHONAL.—7s. 6d. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 2d. per lb.
THYMOL.—Puriss., 10s. 3d. to 12s. per lb., according to quantity. Firmer. Natural, 12s. 6d. per lb. Cheaper.

Perfumery Chemicals

ACETOPHENONE.—7s. 3d. per lb.
AUBEPINE (EX ANETHOL), 10s. 6d. per lb.
AMYL ACETATE.—2s. per lb.
AMYL BUTYRATE.—5s. 3d. per lb.
AMYL SALICYLATE.—3s. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—17s. per lb.
COUMARIN.—10s. 6d. per lb.
CITRONELLOL.—14s. 6d. per lb.
CITRAL.—8s. 9d. per lb.
ETHYL CINNAMATE.—10s. per lb.
ETHYL PHTHALATE.—2s. 9d. per lb.
EUGENOL.—9s. per lb.
GERANIOL (PALMAROSA).—17s. 6d. per lb.
GERANIOL.—6s. 6d. to 10s. per lb.
HELIOTROPINE.—4s. 9d. per lb.
ISO EUGENOL.—13s. 6d. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Bois de Rose, 18s. per lb. Ex Shui Oil, 14s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. 6d. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—8s. 6d. per lb.
NEROLIN.—3s. 9d. per lb.
PHENYL ETHYL ACETATE.—10s. 6d. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—32s. 6d. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN.—18s. 6d. per lb. Good demand.

Essential Oils

ALMOND OIL.—10s. 3d. per lb.
ANISE OIL.—3s. 1d. per lb.
BERGAMOT OIL.—30s. per lb.
BOURBON GERANIUM OIL.—14s. 9d. per lb.
CAMPHOR OIL.—67s. 6d. per cwt.
CANANGA OIL, JAVA.—26s. per lb.
CINNAMON OIL LEAF.—6d. per oz.
CASSIA OIL, 80/85%.—8s. 6d. per lb.
CITRONELLA OIL.—Java, 85/90%, 2s. 1d. per lb. Ceylon, pure, 1s. 10d. per lb.
CLOVE OIL.—6s. per lb.
EUCALYPTUS OIL, 70/75%.—2s. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 21s. per lb.
LEMON OIL.—8s. 3d. per lb.
LEMONGRASS OIL.—4s. 6d. per lb
ORANGE OIL, SWEET.—10s. 6d. per lb.
OTTO OF ROSE OIL.—Anatolian, 30s. per oz. Bulgarian, 70s. per oz.
PALMA ROSA OIL.—9s. 6d. per lb.
PEPPERMINT OIL.—Wayne County, 17s. per lb. Japanese, 8s. per lb.
PETITGRAIN OIL.—7s. 9d. per lb.
SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, June 2, 1927.

BUSINESS has been moderately active during the current week and prices have been well maintained. Export trade also shows signs of improvement.

General Chemicals

ACETONE is unchanged at £61 to £63 per ton, according to quantity.

ACID ACETIC is unchanged.

ACID CITRIC.—Extremely firm, and good business passing at 1s. 6¼d. to 1s. 7¼d. per lb., less 5%.

ACID FORMIC has been somewhat less active, and the price is unchanged at £46 to £48 per ton, according to quantity.

ACID LACTIC.—Firm and unchanged at £43 per ton for 50% by weight.

ACID OXALIC.—Price is well maintained at £27 10s. to £28 10s. per ton.

ACID TARTARIC has been a bright spot and the market is extremely firm at 1s. 6½d. per lb.

ALUMINA SULPHATE is in fair request and price is unchanged at £6 per ton for 17/18%.

AMMONIUM CHLORIDE.—A better business is reported at round about the current quotation of £19 per ton.

ARSENIC.—Unchanged.

BARIUM CHLORIDE.—A fair demand is reported and the quotation is round about £8 10s. to £9 per ton.

COPPER SULPHATE has been in good request, especially for near delivery. Price is extremely firm at about £23 10s. per ton.

CREAM OF TARTAR continues to be extremely firm and the price remains unchanged at from £99 to £102 per ton. A further advance is expected.

EPSOM SALTS.—Unchanged at £5 5s. per ton, demand fair.

FORMALDEHYDE is in somewhat better request and the price is standing at round about £41 to £42 per ton.

LEAD ACETATE is fairly active and price unchanged at £44 per ton for white, and £42 per ton for brown.

LEAD NITRATE.—Unchanged at £38 10s. per ton.

METHYL ACETONE.—Firm at £60 per ton.

METHYL ALCOHOL.—Unchanged.

POTASSIUM CHLORATE has not been so active, but price is well maintained at 3¾d. per lb.

POTASSIUM PERMANGANATE is fairly firm and B.P. quality is quoted at from 7¼d. to 8d. per lb.

POTASSIUM PRUSSIATE continues extremely firm and in good request. Price is unchanged at £65 to £67 per ton.

SODIUM ACETATE.—Good demand is maintained and price is unchanged at £18 to £19 per ton.

SODIUM BICHROMATE.—Unchanged.

SODIUM HYPOSULPHITE.—Unchanged at British makers' figures, with continental producers inclined to stiffen their prices.

SODIUM NITRITE has been very firm and meets with a good demand at £19 10s. to £20 per ton.

SODIUM SULPHIDE.—Unchanged.

YELLOW PRUSSIATE OF SODA.—In good request at 4¼d. to 4½d. per lb.

ZINC SULPHATE.—Quite a fair business is reported at round about £13 to £14 per ton.

Coal Tar Products

The market for coal tar products is very quiet, with little business passing.

90's BENZOL is practically unsaleable, and is quoted at 1s. 5d. to 1s. 5½d. per gallon, while the motor quality is worth about 1s. 4d. to 1s. 4½d. per gallon.

PURE BENZOL is worth about 1s. 9d. per gallon, on rails.

CREOSOTE OIL is unchanged, at 7d. to 7¼d. per gallon, on rails, in the North, while the price in London is from 8½d. to 8¾d. per gallon.

CRESYLIC ACID is slightly weaker, the pale quality, 97/99%, being quoted at 2s. per gallon, on rails, while the dark quality, 95/97%, is worth about 1s. 10d. per gallon.

SOLVENT NAPHTHA is quoted at about 1s. per gallon, on rails.

HEAVY NAPHTHA is worth about 11d. per gallon.

NAPHTHALENES are unchanged, the 76/78 quality being quoted at £8 5s. to £8 15s. per ton, while the 74/76 quality is worth £7 10s. to £8 per ton.

PITCH is unchanged; very little business has been reported. To-day's value is 70s. to 75s. per ton, f.o.b. U.K. ports.

Latest Oil Prices

LONDON, June 1.—LINSEED OIL, quiet, and 5s. to 10s. lower. Spot, ex mill, £35; June, £33 15s.; July-August, £33 15s.; September-December, £34 10s. RAPE OIL slow. Crude, extracted, £44; technical, refined, £46, naked, ex wharf. COTTON OIL quiet. Refined, common, edible, £42. Egyptian, crude, £36; deodorised, £44. TURPENTINE steady at 3d. to 6d. per cwt. advance. American, spot, 43s. 3d.; July-December, 45s. 3d. per cwt.

HULL, June 1.—LINSEED OIL.—Naked, spot to August, £34 15s.; and September-December, £35. COTTON OIL.—Naked, Bombay, crude, £34 10s.; Egyptian, crude, £35 10s.; edible, refined, £39; technical, £38; deodorised, £41. PALM KERNEL OIL.—Crushed, naked, 5¼ per cent., £38. GROUNDNUT OIL.—Crushed-extracted, £44 10s.; deodorised, £48 10s. SOYA OIL.—Extracted and crushed, £34 10s.; deodorised, £38. RAPE OIL.—Crude-extracted, £44; refined, £46 per ton. COD OIL, 29s. 6d. per cwt., net cash terms, ex mill. CASTOR OIL unchanged.

Nitrogen Products

EXPORT.—During the last week the demand for sulphate of ammonia has been maintained, and prices continue unchanged at £10 2s. 6d. per ton, f.o.b. U.K. port in single bags. Very little is definitely known about the form in which the increased production of nitrogen will take place during the coming year, and the move out of supplies is, under the circumstances, very satisfactory.

Home.—The home demand has gradually fallen off since about May 10, and it is anticipated that mixer requirements for the coming season will be the only demand of any consequence in the next few months. The figures for the year are not yet available, but it is anticipated that the total consumption will be two or three thousand tons in excess of last year—a very satisfactory record when the bad weather of the early spring is taken into consideration.

Nitrate of Soda.—During the last month a large business has taken place in nitrate at slightly advanced prices. Nitrate has changed hands for June/July from 16s. to 16s. 9d. per metric quintal, and for later positions at prices a little in excess of this. Messrs. H. Bath report that the tonnage sold at these figures is 435,000 tons. It seems likely that further oficinas will commence to reopen shortly, and that the monthly production of nitrate will be in the vicinity of 150,000 tons. There seems no doubt that the present satisfactory position may not continue when the large continental producers of synthetic fertilisers have announced their prices for the coming year. These producers, however, are awaiting the results of 1926/27 before commencing their campaign.

Large German Potash Sales

THE potash sales of the German Potash Syndicate during the first quarter of 1927 were considerably in excess of those made during the corresponding period of 1925 and 1926, and about equal to half of the full year's trade in 1926. The first quarter is, of course, the usual period for large purchases. According to the latest available data, 228 potash works (including the newly-opened Baden mines) have production quotas in the potash syndicate. In January, 1927, there were 63 works in operation, of which 42 are major operations and 21 subsidiary. Forty-seven works are held in reserve, and 118, or 52·63 per cent. of the total, have closed voluntarily, under the law, until 1953.

Cement Works for Derbyshire

THERE is a probability of the establishment of a new industry amid the famous Peakland scenery of Derbyshire in the form of cement works in the Hope Valley. G. and T. Earle, of Hull, are now engaged in negotiations for land at Hope, Bradwell, and Pin Dale, and if these prove successful, they intend to establish works adjoining the railway line about a quarter of a mile on the Sheffield side of Hope Station, with an aerial conveyor spanning the valley from the quarries. The hillsides at Bradwell and Pin Dale, about a mile from the site of the proposed works, contain excellent deposits of the materials used in cement manufacture.

Power Efficiency Exhibition Cancelled

THE Power Efficiency Exhibition, which was to have been held in Manchester, from June 22 to July 2, has been cancelled owing, it is stated, to the lack of support from the larger engineering firms.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, June 1, 1927.

THERE has been a little more activity in the heavy chemical market during the past week, inquiry particularly for export being good. There are no changes in prices of any importance to record.

Industrial Chemicals

ACID ACETIC 98/100%.—£55 to £67 per ton, according to quantity and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystal, granulated or small flakes, £34 per ton. Powder, £36 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Now quoted 8¾d. per lb., f.o.b. U.K. ports, in little demand.

ACID CITRIC, B.P. CRYSTALS.—In moderate demand and price unchanged at about 1s. 6½d. per lb., less 5% ex store. Continental now quoted about the same figure, ex wharf.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC, 80°.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC.—Quoted 3d. per lb., ex store, spot delivery. On offer from the Continent at about 2¾d. per lb., ex wharf.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Now quoted 1s. 3¾d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality quoted £8 per ton, c.i.f. U.K. ports; crystal powder, 5s. per ton less. Lump on spot, £9 per ton; crystal powder, £8 10s. per ton, ex store.

AMMONIA ANHYDROUS.—Spot supplies now available at about 9½d. per lb., ex store, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of English manufacture quoted £23 to £24 per ton, ex station. Continental material on offer at about £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £18 per ton, c.i.f. U.K. ports.

ARSENIC.—White Powdered quoted £18 per ton, ex wharf, prompt despatch from mines. Spot material available at about £19 per ton, ex store.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals on offer from the Continent at £7 12s. 6d. per ton, c.i.f. U.K. ports, packed in casks. Bags, 5s. per ton less. Spot material quoted £9 5s. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers, £8 per ton, ex station, minimum 4-ton lots. Spot material, 10s. per ton extra. Continental now quoted £7 10s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 to £5 5s. per ton, ex station. Continental rather cheaper at about £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Continental material quoted £24 15s. per ton, ex wharf. British material on offer at about the same price, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Unchanged at £38 per ton, c.i.f. U.K. ports. Spot material quoted £39 5s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental now £2 17s. 6d. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material quoted £33 per ton, ex store.

LEAD, WHITE.—About £33 5s. per ton, ex store.

LEAD ACETATE.—White crystals quoted £42 15s. per ton, c.i.f. U.K. ports; brown, about £40 5s. per ton, c.i.f. U.K. ports; white crystals, on spot, quoted £44 5s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

MAGNESIUM CHLORIDE.—Quoted £6 6s. 6d. per ton, c.i.f. U.K. ports.

POTASH CAUSTIC, 88/92%.—Solid quality quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton. Liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots, £15 7s. 6d. per ton, c.i.f. U.K. ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £27 5s. per ton, ex wharf, early shipment. Spot material on offer at about £28 10s. per ton, ex store.

POTASSIUM CHLORATE.—Powdered quality on offer at £24 5s. per ton, c.i.f. U.K. ports. Spot material, £2 per ton extra.

POTASSIUM NITRATE.—On offer from the Continent at about £20 15s. per ton, c.i.f. U.K. ports. Spot material now quoted £22 per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6½d. per lb. ex store, spot delivery.

POTASSIUM PRUSSIATE, YELLOW.—In good demand and price unchanged at about 7½d. per lb., ex store, spot delivery. Offered from the Continent at 7¼d. per lb., c.i.f. U.K. ports.

SODA CAUSTIC.—Powder, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station, minimum 4-ton lots, on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—English material quoted £22 per ton, ex store. Continental now on offer at £17 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¼d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powder or pea quality, £1 7s. 6d. per ton more; alkali, 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex store, minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton ex wharf, prompt shipment. Pea crystals of British manufacture quoted £15 5s. per ton, ex station, 4-ton lots.

SODIUM NITRATE.—Ordinary quality quoted £13 per ton, ex store. Refined quality, 5s. per ton extra.

SODIUM PRUSSIATE, YELLOW.—Offered for prompt shipment from the Continent at 4¾d. per lb., ex wharf, spot material on offer at 4¼d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE, 60/65%.—Solid, £11 10s. per ton; broken, £12 10s. per ton; cakes, £12 10s. per ton; flake, £14 5s. per ton; crystals, 31/34%, £7 15s. to £8 10s. per ton, according to quality, delivered buyers' works, minimum 4-ton lots on contract. Prices for spot delivery are 5s. and 2s. 6d. per ton extra for solid and crystals respectively. Offered from the Continent at about £9 7s. 6d. per ton, c.i.f. U.K. ports. Broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 10s. per ton; roll, £11 10s. per ton; rock, £11 10s. per ton; floristella, £10 10s. per ton; ground American, £9 5s. per ton, ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered 20s. per ton extra.

ZINC SULPHATE.—Continental material on offer at about £10 10s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Products and Intermediates

ALPHANAPHTHYLAMINE.—1s. 3d. per lb. Some home inquiries.

ORTHO TOLUIDINE.—8d. per lb. Fair home inquiries.

H. ACID.—3s. per lb. Small home inquiries.

PARANITRANILINE.—1s. 8d. per lb. Some inquiries.

Four New Caledon Colours

SCOTTISH DYES, LTD., announce that four of their new Caledon Colours are ready for issue, namely, Caledon Olive 3G, Caledon Olive 2B, Caledon Grey 3G, and Caledon Grey RRH. These four new colours of the Caledon series, on account of their good shades, excellent level dyeing properties, and fastness to light, fill several gaps in this part of the fast vat range. They are specially suitable for cotton piece dyeing, and for artificial silk, but are not recommended for goods which have to withstand a full bleach. The method of dyeing is from a hot strong caustic vat. They will be found particularly suitable for shading purposes, for which their level dyeing properties make them specially applicable.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, June 2, 1927.

The experience of the chemical market here is that, whilst home consumers of heavy chemical products are buying rather more freely than they were recently, the condition of things has not progressed so far as to justify describing the market as otherwise than still quiet, and with Whitsuntide almost upon us there is no likelihood of improvement until after then. There are a number of inquiries coming through for shipment, but actual business on overseas account remains relatively slow.

Heavy Chemicals

For prussiate of soda values on this market are held at 4¼d. per lb., and a moderate demand for this material has been reported. Bicarbonate of soda keeps firm at about £10 10s. per ton, and a quietly steady trade in this continues to be put through. There is not much inquiry about just now for phosphate of soda, but prices, although on the easy side, are not actually changed, about £12 17s. 6d. per ton still being asked. Bleaching powder is attracting a fair amount of attention and quotations are maintained at £8 per ton. Bichromate of soda continues to be offered here at about 3d. per lb., but there is no important weight of business in this being placed. Glauber salts are in quiet demand at round £3 5s. per ton, and saltcake is in much the same position, offers of this being in the neighbourhood of £3 12s. 6d. per ton. Buying interest in sulphide of sodium is at a low ebb and the tendency of prices is easy: commercial quality is on offer at about £8 7s. 6d. per ton and 60–65 per cent. concentrated solid at £11. Current offers of chlorate of soda are down to about 2⅞d. per lb., and the demand in this section of the market is slow. Caustic soda continues to move off in fairly good quantities and prices are fully held at the recent range of from £14 10s. per ton for the 60 per cent. quality to £16 10s. for the 76 per cent. Nitrite of soda is still quoted at about £19 per ton, and the demand for this material is of moderate extent. Alkali keeps firm and continues to meet with a fair amount of inquiry at about £6 15s. per ton. Only a quiet trade is passing in hyposulphite of soda, with photographic material quoted at £15 5s. to £15 10s. and commercial grade at £9 12s. 6d.

Chlorate of potash is not attracting much attention at the moment and values are slightly easier at 3⅛d. per lb. Yellow prussiate of potash meets with a quiet demand and values are fairly steady at round 7¼d. per lb. Carbonate of potash is about maintained at £27 per ton, but the demand just now is only of moderate extent. Permanganate of potash is selling in limited quantities at from 6d. to 6¼d. per lb. for the B.P. quality and about 5¼d. for the commercial. Bichromate of potash meets with some inquiry at from 4d. to 4¼d. per lb. A moderate trade is reported in caustic potash at steady prices, these ranging from £29 to £30 10s. per ton, according to quantity.

There is still a fair grade passing in sulphate of copper and values are well held, up to £25 10s. per ton, f.o.b., still being quoted for this material. Arsenic is in limited request, but prices appear to be fairly steady again at about £16 5s. per ton at the mines for white powdered, Cornish makes. So far as acetate of lime is concerned there is no great weight of business being done, but quotations are somewhat steadier on short supplies, grey material being offered at about £15 15s. per ton and brown at £8 5s. Acetate of lead is a relatively slow seller, but prices are unchanged at £43 10s. per ton for white and £41 for brown. Nitrate of lead continues quiet and easy at round £38 per ton.

Acids and Tar Products

Acetic acid is fully maintained at about £66 10s. per ton for glacial and £37 for the commercial quality, and a fair inquiry has been reported during the week. There is not much business passing in citric acid, but up to 1s. 6¼d. per lb. is still being quoted for this material. Tartaric acid is on offer at 1s. 3¼d. per lb. and a quiet trade is being done. Oxalic acid can be bought at from 2¾d. to 3d. per lb., but buying interest in this section is still of limited extent.

There is not much actual trade passing in pitch, but with supplies on the short side values are held at about £3 10s. per ton. Carbolic acid is quiet and easy at about 8¼d. per lb. for crystals and 2s. 4d. per gallon for crude 60's. Solvent naphtha is weak and very slow, with offers reported at about 1s. 2¼d. per gallon, delivered. Creosote oil keeps fairly steady at from 7¼d. to 7½d. per gallon, and a fair amount of inquiry has been reported.

Lime and Lime Mortars

A New Building Research Report

The Department of Scientific and Industrial Research has issued *Building Research Special Report No.* 9, on "Lime and Lime Mortars," by A. D. Cowper, M.Sc., A.I.C. (H.M. Stationery Office, pp. 81, 1s. 9d.). It is stated in the preface that the present report is not a discussion of research work carried out at the Building Research Station; it is a compilation of information preliminary to such work. The various tests mentioned have, however, been tried at the Station. A summary of existing information was rendered necessary not only by the needs of the Station, but also by the number of inquiries received. It will be remembered further that a committee of the British Engineering Standards Association has recently been set up to consider the drawing up of a standard specification for lime. The suggested specifications appended to this report are only tentative, and may require modification as the result of the work of the British Engineering Standards Association committee.

The purpose of the report is to give an account of the various uses of lime (quicklime and slaked or hydrated lime) in building operations, to give a practical classification of the different types of limes, and to indicate for which uses they are best adapted; to collect together the many valuable hints and suggestions offered by traditional practices in the craft; and to provide a useful bibliography of references to accessible works. Detailed definitions and specifications of different lime products (and immediately related materials used in lime mortar and plaster) are then developed, with due reference to such tentative or standard specifications as have already been prepared by different public bodies for lime products, gypsum plasters, and Portland cement. The subject-matter is discussed under the following headings: historical; the process of lime burning; classification; the uses of lime in building; limewashes; lime plaster; pozzolanas; mortars and concrete; specifications; bibliography. Each chapter is followed by a list of references to the special question under review. There is also a short but useful glossary of terms.

Colonial Scientific and Research Service

Estimated to cost £1,755,000 a year, a scheme for the establishment of a Colonial Scientific and Research Service has been approved by the Colonial Office Conference.

It is officially stated that the service would be "available for the requirements of the whole Colonial Empire, for the support of institutes required for that purpose and for the increase of research and study facilities in connection with the specialist services generally."

The plan, approved by the Colonial Office Conference, will be submitted to the Colonies concerned and the Colonial Secretary, and the scheme, as at present formulated, will apply to non-self-governing dependencies, including Colonies, protectorates, and mandated territories. It is hoped, however, that it will be a step towards the realisation of a scheme for the full development of the latent resources of the Empire. The recommendations of the Conference are embodied in the report issued by a committee, which points out that British trade with the Colonies has been quadrupled in the last twenty years. The total imports from the Colonies in 1925 were greater than those from the whole of India and from any one of the self-governing Dominions, and were also greater than those from any foreign country with the exception of the United States. The exports to the Colonies were greater than those to any single country except India. Yet, in spite of this growth, states the committee, "rich areas have been scarcely scratched over, and the aid of science but half-heartedly invoked."

Company News

PINCHIN, JOHNSON, AND CO.—The directors have resolved that the usual dividend of 6½ per cent. per annum, less tax, be paid on the preference shares for the six months to June 30.

TARMAC, LTD.—The Board have authorised the payment on July 1 next of a dividend on the 5½ per cent., free of income tax, cumulative preference shares in respect of the half-year ending June 30, 1927.

CONSETT IRON CO., LTD.—The directors state that the trading results of the year ended March 31, 1927, do not warrant their recommending the payment of a dividend on the preference or the ordinary shares.

SALAR DEL CARMEN NITRATE SYNDICATE.—The gross profit for the year ended December 31 last was £6,251, but the net result is a loss of £33,716. After deducting the credit of £12,590 brought in, there remains a deficit of £21,126 to be carried forward.

NATIONAL DRUG AND CHEMICAL CO. OF CANADA.—After paying all expenses and providing for bad debts and income tax, the report for the year ending January 31, 1927, states that there is a net trading profit of $64,280, or £13,208, which, with income from investments in other companies, makes a total of £23,030.

BLEACHERS' ASSOCIATION, LTD.—The profits for the year ended March 31 last amounted to £627,905, compared with £1,066,221 last year. It is proposed to place £90,000 to the reserve, and pay a final dividend of 1s. 2d. per share, making 1s. 6d. for the year, and to carry forward £294,900. The total dividend amounts to 7½ per cent., against 14⅜ per cent. for the previous year. It will be recalled, however, that during 1925-1926 there was a scrip bonus of 60 per cent.

CROSFIELDS OIL AND CAKE CO.—The net profits for the year ended March 31, 1927, amount to £27,545, which with the balance brought forward gives a total of £73,075. A final dividend is recommended of 5 per cent. per annum, less tax (which, with interim dividend of 20 per cent. already paid on original capital, is equivalent of 15 per cent. per annum on present capital), placing to general reserve £8,000, to staff reserve fund £1,000, and carrying forward £2,075. During the year £50,000 of company's undivided profits have been capitalised by issue of a corresponding amount divided into 100,000 fully-paid 10s. shares, while then existing capital of 50,000 £1 ordinary shares was converted into 100,000 10s. shares, bringing the capital to its present figure of £100,000.

BOOTS PURE DRUG CO., LTD.—The net profit for the year ended March 31, 1927, amounted to £641,732. After allowing for the year's dividends on the preference and preferred ordinary issues, there remains a balance of £544,982, out of which interim dividends on the ordinary shares have been paid, amounting to £360,000, leaving a balance of undivided profit of £184,982. The directors recommend that the last interim dividend, paid on March 31, 1927, shall be the final dividend for the year. The balance standing to the credit of profit and loss account at March 31, 1926, after payment of directors' fees, amounted to £234,352, to which is added the balance of undivided profit for the past year of £184,982, making £419,334, out of which it is proposed to transfer to reserve fund £150,000 and to works development fund £100,000, leaving to be carried forward £169,334. The amount standing to the credit of reserve fund at March 31, 1926, was £400,000, and amount now transferred from profit and loss account of £150,000, makes a total of £550,000. It is recommended that a further sum of £20,000 be appropriated towards a general employés' pension fund. This, together with accrued interest, amounting to £4,400, will make a total sum of £112,400 available for this object, apart from the Chemists' Pension Fund already in operation.

A New B.B. Journal

BENN BROTHERS, LTD., have acquired from Faber and Gwyer, Ltd., the copyright and goodwill of *The Nursery World*, which they will publish from Bouverie House, Fleet Street, London, as from the issue of June 15. Contributors, correspondents, advertisers, and others are requested to note that all communications in respect of this weekly should now be addressed to Bouverie House.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

CHEMICALS.—An agent in Hamburg desires to represent a British manufacturing firm on a commission basis or otherwise. (Reference No. 570.)

COCHINEAL.—A commission agent, established in Damascus, desires to get into touch with British exporters. (Reference No. 579.)

OIL SEEDS.—An agent in Ulm a.D desires to represent, on a commission basis, a British firm for the South of Germany and the Rhine district, for the sale of linseed, Bombay mustard seed, and Calcutta poppy seed, to the mustard industry and oil works. (Reference No. 566.)

Tariff Changes

JAPAN.—The text has been received of the measure providing for the extension of the list of goods originating in Kwantung Province which are exempt from import duty on importation into Japan. Two schedules are annexed to the law, A, specifying goods exempt from duty, and B, relating to articles on which only a part of the duty is remitted. Schedule A includes special steel containing not less than 0·5 per cent. by weight of chrome, tungsten, or molybdenum (ingots and slabs refined in Kwantung Province, and bars, rods, plates, and sheets made therefrom) (No. 462, 2 ex 1); electric resistance materials containing nickel or chrome (ingots and slabs refined in Kwantung Province and wire made therefrom) (ex No. 476).

PALESTINE.—Gold-plated wire, pladdium coil, and felspar have been added to the schedule of exemptions from Customs duties.

Annual Meeting of Tarslag (1923), Ltd.

THE annual general meeting of Tarslag (1923), Ltd., was held in Birmingham on Monday, Mr. L. J. Major (chairman), presiding. The profits from trading accounts during last year, he said, were £22,560. They had written off the usual amount for depreciation. Directors' fees were £100 less. They had paid a dividend on the 8 per cent. preference shares up to June 30 last. The net result was a credit balance of £9,138 17s. 1d., which the directors recommended should be carried forward. With regard to the writing down of capital, owing to the inadequate profits which they had been making since the formation of the company they had not been able to write off their preliminary expenses, and they had had to advance money to their Belgian company and to invest money which had not given an adequate return, and it was proposed to write down the ordinary shares to 1s., and at the same time to increase the capital to £250,000, bringing it up to £250,000 as before. If further capital was issued they would not have to pay stamp duty on the £50,000 by which the nominal capital was thus increased. These shares would not be issued at present.

At an extraordinary general meeting of the company, resolutions regarding the reduction of, and increase in, the capital of the company were submitted and duly passed.

Seeing Old London

THE first of the Fleet Street tours, which are being arranged for the benefit of readers of THE CHEMICAL AGE, will take place on Tuesday, June 21, under the guidance of Mr. Allen S. Walker, the well-known archæologist and lecturer. A visit will be paid to the Temple, the Temple Church, Middle Temple hall, and to the Inner Temple hall. The second of the series of tours, on June 29, will include St. Clement Danes church, No. 17, Fleet Street, the "Old Curiosity Shop," and Dr. Johnson's house in Gough Square. Vacancies are left for these two tours, and readers of THE CHEMICAL AGE and any relatives and friends will be able to join the parties, without cost, on application to Room 417, Bouverie House. The parties will assemble at Bouverie House at 2.45 p.m., and return about 5.30 for a cup of tea. In applying for tickets, it is desirable to give more than one date, in the event of the available accommodation on any particular date being exceeded.

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New French Tariff Draft

A NEW French tariff has been drafted by M. Bokanowski, the Minister of Commerce, and involves an almost complete recasting of the existing system. Among the most interesting sections of the new tariff is that concerning chemical products. This promises, in certain essential cases, high protection for the growing French industry. In the explanatory memorandum attached to the new Tariff Bill it is observed that the highly organised German chemical industry, deprived by hostile tariffs of the full benefit of its pre-war markets, is attempting to take the utmost advantage of those which remain fairly open or can be reopened, and particularly of the French market. Hence, the French chemical industry, which as regards dyestuffs and pharmaceutical products practically dates from the war, must be given enough protection to ensure its being able to defeat competition in the French market, which it is now sufficiently developed to supply. The duties on dyestuffs are particularly stiff. The duties on those derived from pyrazolone and stilbene, for example, are raised from 510 f. per 100 kg. to 1,600 and 1,500 f. respectively, while several other colouring matters are subject to duties ranging up to 2,400 f. per 100 kg. Other chemicals are also involved. For example, there are the following increases among others (per 100 kg.) : cellulose acetate, from 601 f. to 1,000 f. ; resorcin, from 306 f. to 700 f. ; aniline and its salts, from 127.5 f. to 230 f. ; calcium lactate, from 15 f. to 200 f. ; iodoform, from 2,100 f. to 3,200 f., etc.

Dyeing Industry Developments

IN his review of industrial conditions given on May 28, at the meeting of the British Cotton and Wool Dyers Association, Mr. Adolph Hoegger spoke hopefully of the progress that had been made by the British dyeing industry on its technical side. Many dyestuffs not hitherto made here had, he said, been produced during the past year by various British firms, and most of these might be classified as " fast dyes," including many dyestuffs specially suitable for use in various branches of the artificial silk trade. Incidentally, the " Slubbers " Company had for some time been interested in the Nuera Art Silk Company, and Mr. Hoegger stated that results given by the complete experimental plant that had been in use for the training of the workpeople required for the large plant, had given satisfaction. He welcomed the consolidation of the dye-making industry brought about by the formation of Imperial Chemical Industries, and foresaw in this step the prospect of further reductions in prices to colour users. A reference was made to the still larger scheme under consideration for an agreement between the British and German dyeing industry, but Mr. Hoegger observed that until details of the proposed scheme were announced, any criticism would be out of place.

Meetings and Dinner of Glass Technologists

MEETINGS of the Society of Glass Technology were held in University College, London, on Wednesday, May 18, and Thursday, May 19, the president, Mr. W. Butterworth, senior, M.A., in the chair. On the evening of May 18 the annual dinner was held in the Hotel Cecil, London, and during the morning of May 19 a visit took place to the lamp works of the General Electric Co., Ltd., at Brook Green, Hammersmith. At the meeting on the afternoon of May 18 the following three papers were presented : " The Decomposition of Glass by Water at High Temperatures and Pressures," by Dr. C. W. Morey and Dr. N. L. Bowen ; " The Brittleness of Opal Glass," by Professor G. Gehlhoff and Dr. M. Thomas ; and " The New British Fifteen-Arm Automatic Suction Bottle Machine," by F. Redfern, junior. The meeting on the afternoon of May 19 was devoted to a discussion on " Furnace Efficiency." The discussion was opened by Professor W. E. S. Turner, and contributions were made by Mr. B. P. Dudding, Mr. E. A. Coad-Pryor, Mr. J. H. Webster, and others.

THE QUANTITY OF BROMINE recovered in the United States from natural brines and sold or used in 1926 by the producers amounted to 1,245,760 lb. valued at $426,837, according to reports made to the Bureau of Mines, Department of Commerce. This is a decrease of 20 per cent. from the quantity reported in 1925. Brines in Michigan, Ohio, and West Virginia furnish the bromine.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[NOTE.—The publication of extracts from the " Registry of County Court Judgments " does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

SELLIS CO., Flecto Works, 37, Wellington Street, Leicester, disinfectant specialists. (C.C., 4/6/27.) £11 12s. April 29.

Receiverships

AGOS, LTD. (R., 4/6/27.) H. Keeling, C.A., of 109, Colmore Row, Birmingham, was appointed receiver on May 19, 1927, under powers contained in debentures dated June 6, 1924.

BOOTH (ALFRED) (NEW BRIGHTON), LTD. (R., 4/6/27.) P. S. Booth, of 2, Bixteth Street, Liverpool, ceased to act as Receiver or Manager on April 5, 1927.

STAFFORD AND STAFFORD, LTD. (R., 4/6/27.) L. D. Woods, of Premier House, 150, Southampton Row, W.C.2, was appointed Receiver and Manager on May 21, 1927, under powers contained in a first mortgage debenture dated March 5, 1926.

London Gazette, &c.

Company Winding Up Voluntarily

KATHOXYD, LTD. (C.W.U.V., 4/6/27.) F. W. Inns, accountant, 88-90, Chancery Lane, London, W.C.2, appointed liquidator, May 23. Meeting of creditors at liquidator's office on Tuesday, June 7, at 12 noon. Creditors' claims by July 12.

New Company Registered

N. C. ZINC OXIDE CO., LTD., 12A, Charterhouse Square, London, E.C.1. Registered as a " private " company on May 26. Nom. capital, £50,000 in 47,500 " A " ordinary shares of £1 each, and 50,000 " B " ordinary shares of 1s. each. Zinc, zinc oxide, and other metal manufacturers, metal dealers and ore dealers, etc., and to adopt an agreement with H. E. Coley. Directors :—H. E. Coley, T. Miller Jones, and T. S. Murray.

Benn Brothers' Other Journals

THE CABINET MAKER.—Garden and Cane Furniture ; Training the Salesman ; Moisture in Wood ; Registering Trade Marks : Protecting Designs and Inventions ; Notes from the Home Journals.

THE ELECTRICIAN.—Special I.M.E.A. Convention Number : Full Report of the I.M.E.A. Annual Convention ; " The Potential Demand for Electricity," by Hugh Quigley ; " Automatic Substations as an Essential of Good Service," by Cyril Sylvester.

THE FRUIT GROWER.—Ninth Annual National Food Production Number : " Our Intensive Cultures : Progress and Lines of Research," by Sir A. Daniel Hall ; " The Teaching of Experience : Mistakes in Fruit-Growing," by E. M. Bear ; " Fruit Packing Stations : The Problem for English Fruit-Growers," by J. Turnbull ; " The Tomato in Cold Storage," by Dr. J. Barker.

GARDENING ILLUSTRATED.—The Gardens at Walsham House, near Godalming ; " Rhododendron Notes," by " Peter the Hermit " ; New Plants at Chelsea Show (illustrated) ; Border Daffodils.

THE GAS WORLD.—Monthly Coking Section ; Meeting of the Society of British Gas Industries ; Current Industrial Problems ; Valuation Methods in the Irish Free State.

THE HARDWARE TRADE JOURNAL.—Merchandise Marks : The Iron and Steel Inquiry ; Per Capita Purchases of Hardware ; Contracts Placed by Government Departments.

THE TIMBER TRADES JOURNAL.—Russia's Timber Supplies ; Canada's Forest Resources ; Claim of British Oak ; On Packing Circular Saws.